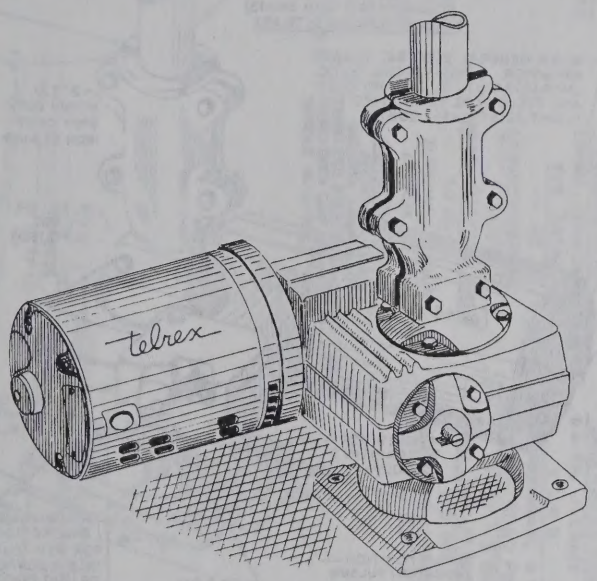
TELREX HEAVY-DUTY BEAM ROTATOR

PRODUCED BY POPULAR DEMAND !



Heavy-Duty Beam Rotator Model R-200

- Designed to produce more horsepower and higher gearing efficiency per dollar than any rotator on the market!
- Rotates and holds the largest 10, 15, and 20-meter beam combinations.
- General Electric heavy-duty 1/6 hp motor.
- Boston Gear double worm and worm-gear reducer.
- Tapered roller bearings.
- Two-piece gray-iron casting to firmly couple antenna mast to rotator drive shaft.

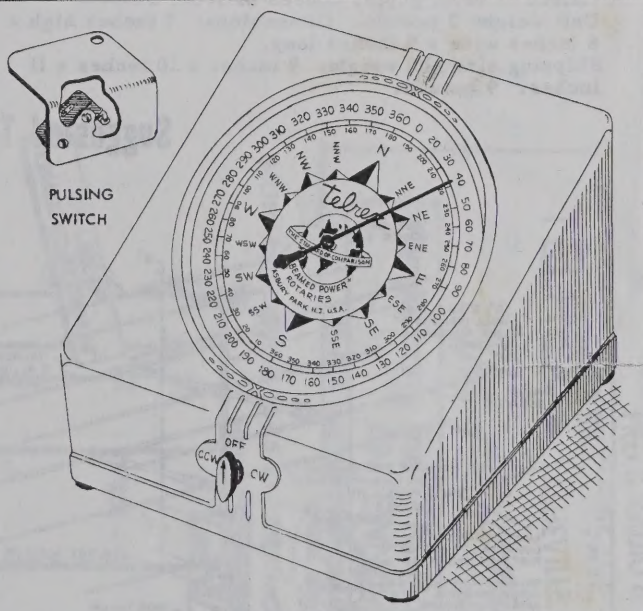
Available immediately.

Price $225.00

Control Box & Indicator Model A

- Controls are housed in an attractive, deluxe aluminum-cast case, sprayed Duco black.
- Tri-colored compass face features easy-to-read direct and reciprocal azimuth degree scales which indicate the array heading within six degrees!
- Rotation control simplified by use of single switch.
- Can be used with other existing installations.
- Supplied with pulsing switch.

Price $99.50



Available March 15, 1956

AMATEUR NET — F.O.B. ASBURY PARK, NEW JERSEY

WRITE FOR CATALOG
Mention models or bands in which you are interested.

telrex LABS
TV & COMMUNICATION ANTENNAS

ASBURY PARK
NEW JERSEY

ORIGINATORS & MANUFACTURERS OF THE WORLD'S FINEST TV & COMMUNICATION ANTENNAS

In response to many requests from satisfied Telrex antenna owners all over the world, who have asked for a Telrex-quality rotator, here is the **finest beam rotator available!**

SPECIFICATIONS

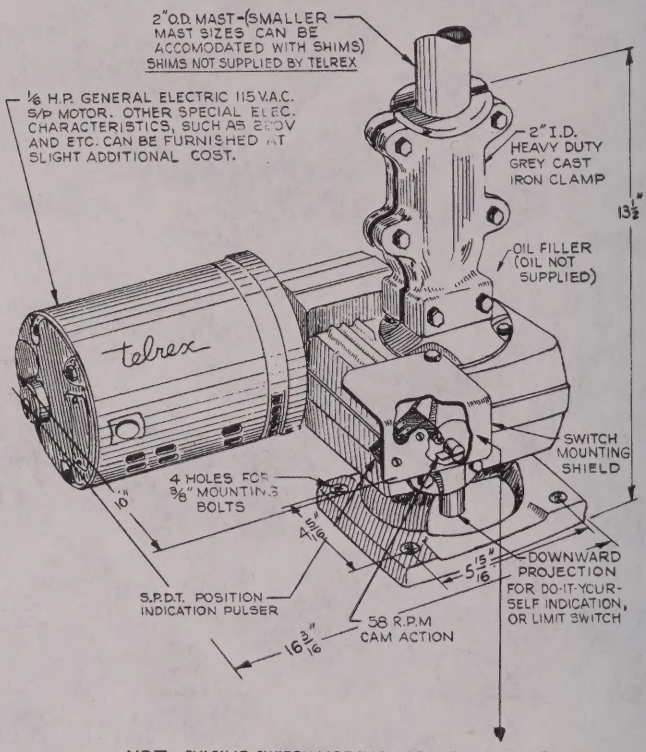
Heavy-Duty Beam Rotator Model R-200

Weatherproof extra-heavy gray-iron cast housing.
Heavy-duty 1/6 hp 1,750 rpm G.E.,S/P, 115v a-c motor.
Four wires required to operate (not included).
Output rotation .97 rpm at 1,000 in-lb torque.
Boston Gear precision-cut, hardened, ground and polished worms, bronze worm gears, and tough heat-treated alloy steel shafts.
Oil seals provided at all shaft extensions.
Tapered roller bearings withstand more than 800-lb downthrust-load capacity.
Two-piece adapter casting firmly couples 3/4-inch rotator drive shaft to 2-inch OD antenna mast.
Rotator weighs 50 pounds. Dimensions: 9 inches high x 11 inches wide x 16 inches long.
Shipping size and weight: 14 inches x 15 inches x 22 inches. 70 pounds.
(Approx. one pint No. 10-viscosity oil required in gear housing. Not included).

Control Box and Indicator Model A

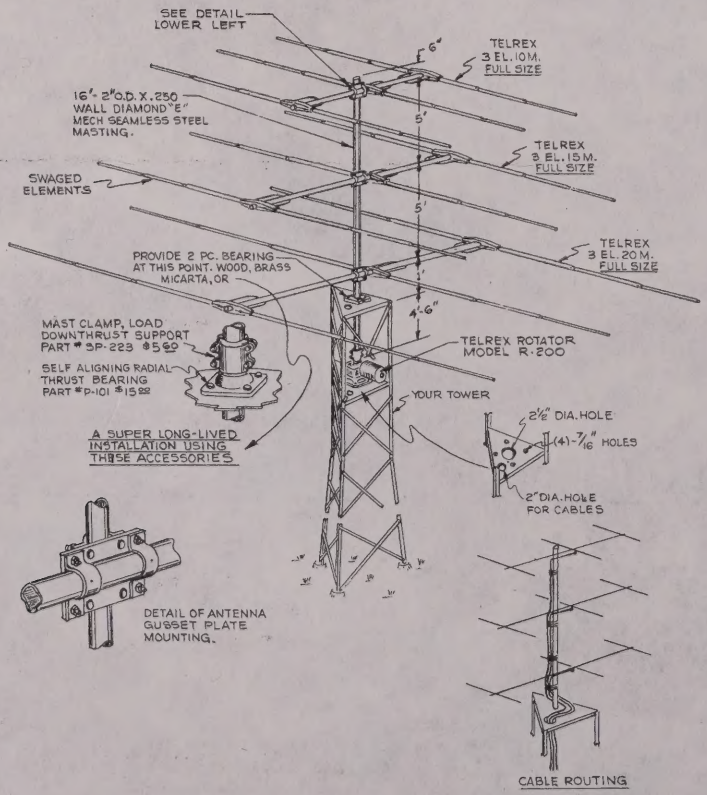
Positive position indication provided by a pair of add-subtract relays pulsed every 6° by a 58-rpm cam-actuated switch.
Five-conductor, (No. 18) color-coded control cable is required (not included). Desired lengths may be purchased at local supply houses or from Telrex.
Unit weighs 8 pounds. Dimensions: 7 inches high x 8 inches wide x 9 inches long.
Shipping size and weight: 9 inches x 10 inches x 11 inches. 9 pounds.

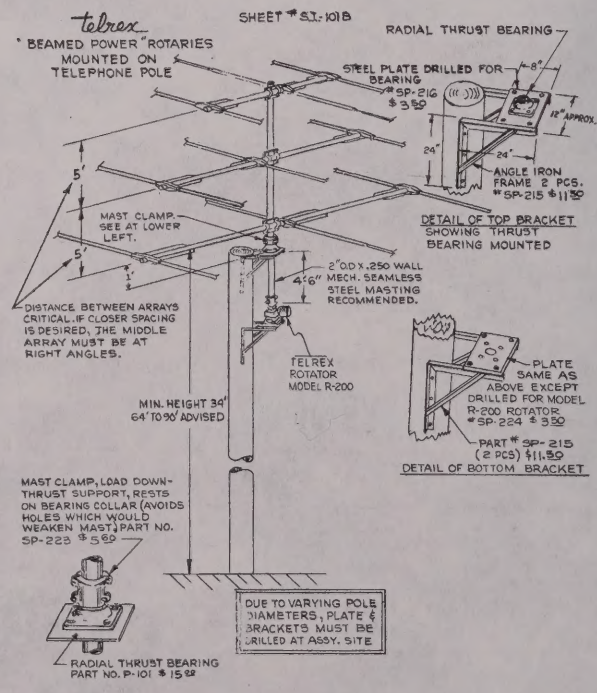
ROTATOR ASSEMBLY



NOTE: PULSING SWITCH NOT INCLUDED WITH ROTATOR. IS SUPPLIED WITH CONTROL BOX & INDICATOR

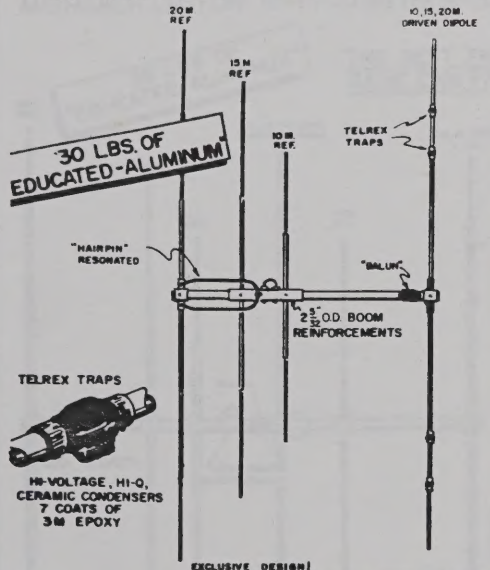
Suggested Types of Installations

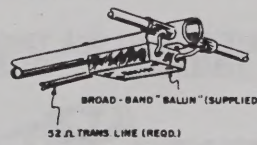


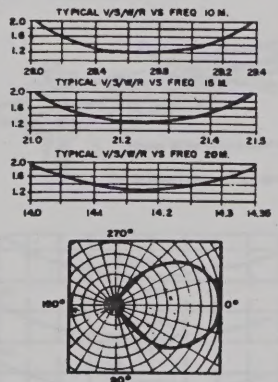


Single transmission line

MODEL TB4EC/1KWP - 4 ELEMENT TRI-BAND®
10-15-20 Meter - 2KWP. - Gain 5.5 DB



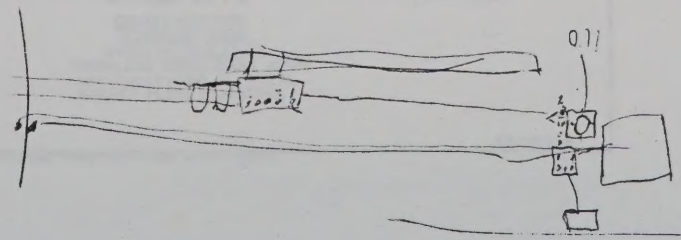




TYPICAL MEASURED PATTERN AND V/S/W/R WHEN TC88B IS MOUNTED IN THE CLEAR 34 FT. ABOVE GROUND.

SPECIFICATIONS

FREQ. RANGE	POLARIZATION	GAIN - MEASURED
10, 15 and 20 METERS	LINEAR, HORIZONTAL	5.5 DB, AVERAGE
SIDE NULLS	F/B RATIO	V.S.W.R.
35 DB	14 DB	1.2/1 AT RESONANCE, 3 BANDS
WEIGHT	ENVIRONMENTAL	BEAMWIDTH TO 1/2 PWR. PT.
30 LBS.	110MPH	60° - 3 BANDS
SHIPPING WT.	WIND SURFACE AREA	WIND LOAD AT 100 M.P.H.
40 LBS.	4.0 SQ/FT.	116 LBS
LONGEST EL. LGTH.	TURNING RADIUS	RECOMMENDED SUPPORT MAST
APPROX. 30 FT.	APPROX. 17 FT.	2" O.D.
POWER RATING	CONSTRUCTION	
2KW P.E.P.	ALUMINUM DURAL, MICARTA INSULATION, STAINLESS STEEL ELEC. HDWR HEAVY-DUTY CAST ALUMINUM SADDLE W/U-BOLT	
BOOM		
Aluminum boom 2 in., 2½ in. 8 ft.		



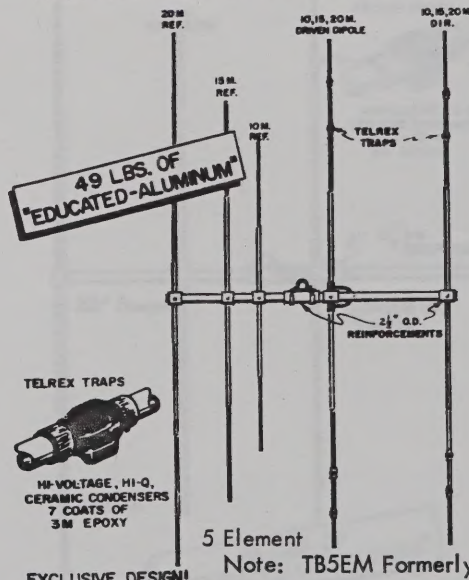
FRECK RADIO & SUPPLY CO., INC.
38 BILTMORE AVE. - P. O. BOX
ASHEVILLE, N. C. 28807

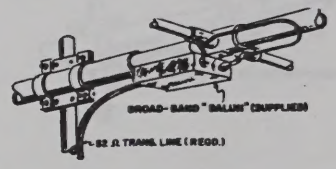
TELREX
"The performance line"
"WITH A MATERIAL DIFFERENCE"

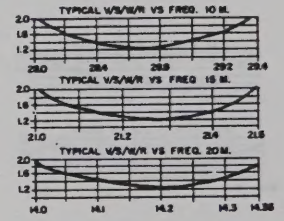
Single trans. line "TRI-BAND" and "DUO-BAND" ANTENNA Catalog

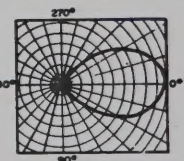
TELREX LABORATORIES, ASBURY PARK N.J. 07712, U.S.A.
PHONE 201-775-7252

MONARCH CUSTOM 10-15-20 METER MODEL TB5EM/4KWP









TYPICAL MEASURED PATTERN AND V/S/W/R WHEN TC99-C IS MOUNTED IN THE CLEAR, 34 FT. ABOVE GROUND.

5 Element
Note: TB5EM Formerly TC99D

EXCLUSIVE DESIGN!
3 OPTIMUM SPACED, OPTIMUM TUNED, REFLECTORS, PROVIDE OPTIMUM GAIN, F/B RATIO AND GOOD IMP. GAIN-BANDWIDTH ON 10, 15 AND 20 METERS.

SPECIFICATIONS

FREQ RANGE	POLARIZATION	GAIN - MEASURED
10, 15 and 20 METERS	LINEAR, HORIZONTAL	8.5 DB, AVERAGE
SIDE NULLS	F/B RATIO	V.S.W.R.
35 DB	28 DB+	1.3/1 AT RESONANCE, 3 BANDS
WEIGHT	ENVIRONMENTAL	BEAMWIDTH TO 1/2 PWR. PT.
49 LBS.	110MPH	60° - 3 BANDS
SHIPPING WT.	WIND SURFACE AREA	WIND LOAD AT 100 M.P.H.
60 LBS	6.6 SQ/FT	210 LBS
LONGEST EL. LGTH.	TURNING RADIUS	RECOMMENDED SUPPORT MAST
APPROX. 36 FT.	APPROX. 20 FT.	2" O.D.
POWER RATING	CONSTRUCTION	
4KW Peak	ALUMINUM DURAL, MICARTA INSULATION, STAINLESS STEEL ELEC. HDWR. HEAVY-DUTY CAD. PLT. STEEL GUSSET PLT. MOUNTING.	
BOOM		
Aluminum boom 2 in., 2½ in. x 18 ft.		

"TRI-BAND" IS A TELREX REGISTERED TRADEMARK

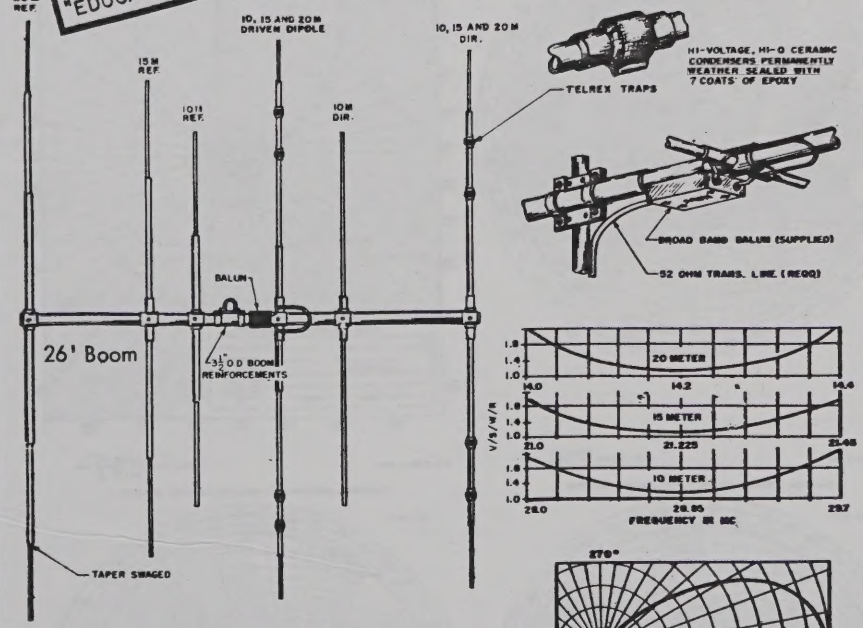
THE MFR RESERVES THE RIGHT TO MAKE CHANGES IN DESIGN, MATERIALS, SPECIFICATIONS AND PRICES WITHOUT NOTICE.

KING !--- of all single-transmission-line "TRI-BAND"® Antennas

MONARCH CUSTOM 10-15-20 METER MODEL TB6EM/5KWP

85 LBS OF "EDUCATED-ALUMINUM"

THE BEST THAT MONEY AND LOVE OF THE GAME CAN PRODUCE, FOR THE AMATEUR!

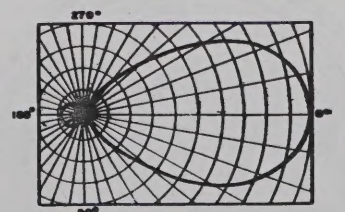


EXCLUSIVE TELREX PERFORMANCE DESIGN!

3 OPTIMUM SPACED, OPTIMUM TUNED, REFLECTORS, PROVIDE OPTIMUM GAIN, F/B RATIO AND EXCELLENT 10,15,20 METER GAIN-BANDWIDTH!

MONARCH CUSTOM 6 ELEMENT TRI-BAND®

5 KWP - 10-15-20 METER - GAIN 10 DB



TYPICAL MEASURED PATTERN AND VS/W/R WHEN MOUNTED IN THE CLEAR, 34 FT. ABOVE GROUND, OR HIGHER.

SPECIFICATIONS

FREQ. RANGE
10, 15 AND 20 METER BANDS

SIDE NULLS
35 DB

WEIGHT
85 LBS

SHIPPING WT.
114 LBS

LONGEST EL. LGTH.
APPROX. 36 FT.

POWER RATING
5 KW Peak.

BOOM
3" and 3-1/2 O.D. x 26'
ALUMINUM

POLARIZATION
LINEAR, HORIZONTAL

F/B RATIO
30 DB

ENVIRONMENTAL
130MPH

WIND SURFACE AREA
9.5 SQ. FT.

TURNING RADIUS
APPROX. 26 FT.

CONSTRUCTION
ALUMINUM DURAL, MICARTA INSULATION, STAINLESS STEEL ELEC. HDWR. HEAVY-DUTY CAD. PL. STEEL GUSSET PLATE MOUNTING.

GAIN-MEASURED
10 DB, AVERAGE

V. S. W. R.
1.3/1 AT RESONANCE, 3 BANDS

BEAMWIDTH TO 1/2 PWR. PT.
58°- 3 BANDS

RECOMMENDED SUPPORT MAST
2" O.D. SEAMLESS STEEL .134 WALL

WIND LOAD AT 100 M.P.H.
300 LBS

467010-A

THE MFR RESERVES THE RIGHT TO MAKE CHANGES IN MATL SPECS AND PRICES WITHOUT NOTICE

No. D466140-A

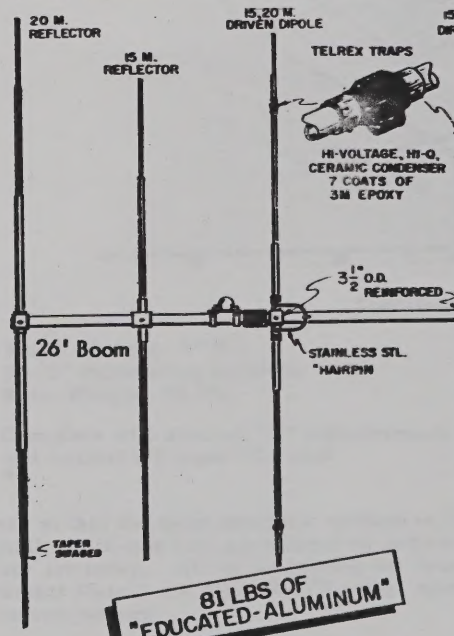
TECHNICAL DATA SHEET

TELREX 15 and 20 METER "DUO-BAND"

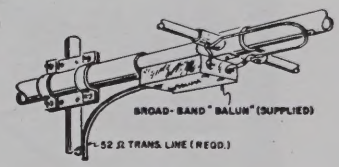
"MONARCH" CUSTOM MODEL SDBM30D

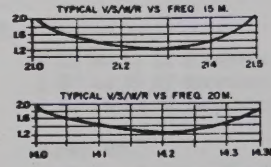
TELREX LABORATORIES ASBURY PARK N.J. U.S.A.

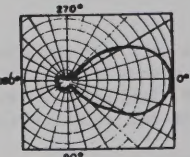
THE VERY BEST SINGLE-TRANSMISSION-LINE "DUO-BAND" 15,20 METER EVER PRODUCED!



81 LBS OF "EDUCATED-ALUMINUM"







TYPICAL MEASURED PATTERN WHEN MTD. IN THE CLEAR AT 34 FT. OR HIGHER, ABOVE GND.

SPECIFICATIONS

FREQ RANGE
15 and 20 METER BANDS

SIDE NULLS
35 DB

WEIGHT
81 lbs NET

SHIPPING WT.
110 lbs.

LONGEST EL. LGTH.
Approx. 36 ft.

POWER RATING
5KW Peak

BOOM
ALUM. 3" & 3½" O.D. X 26 ft

POLARIZATION
LINEAR, HORIZONTAL

F/B RATIO
30 DB

ENVIRONMENTAL
130MPH

WIND SURFACE AREA
9.50 SQ. FT.

TURNING RADIUS
APPROX. 25 FT.

CONSTRUCTION
ALUM. DURAL
MICARTA INSULATION
STAINLESS STL. HDWR.
HEAVY DUTY CAD. PLT.
STL. GUSSET PLT. MOUNT.

GAIN - MEASURED
10.0 DB AVERAGE

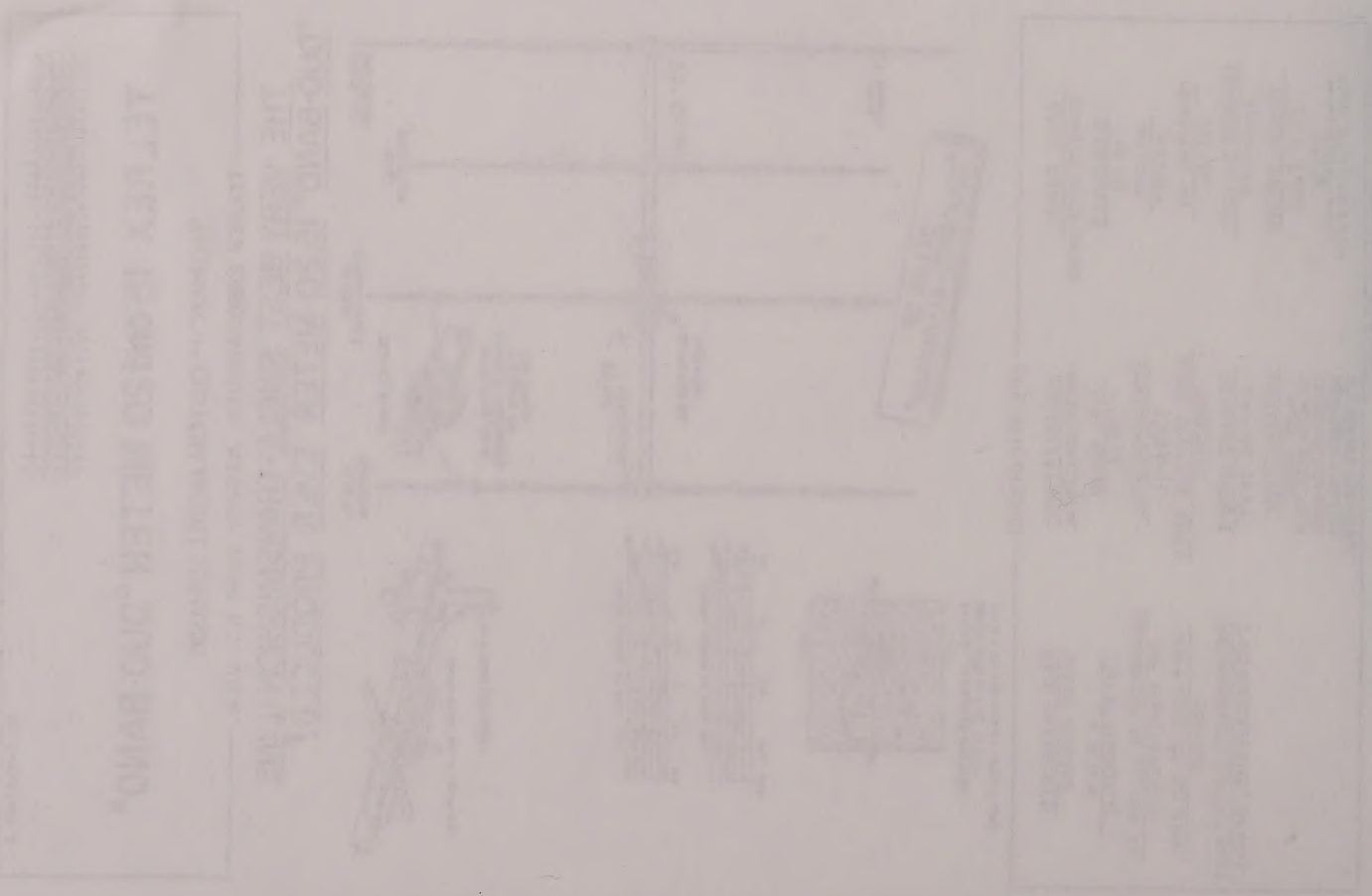
V. S. W. R.
1.3/1 AT RESONANCE,

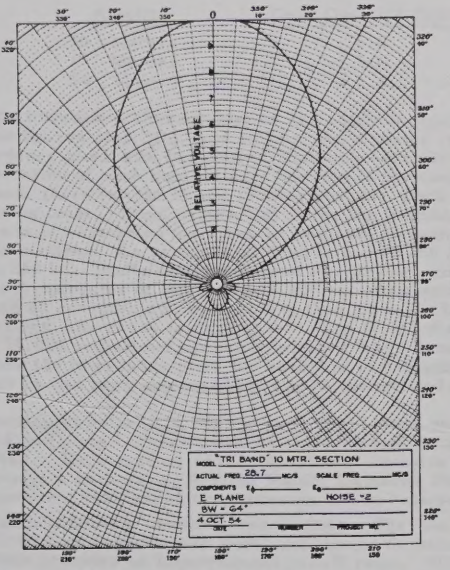
BEAMWIDTH TO 1/2 PWR. PT.
59° 15 and 20 METERS

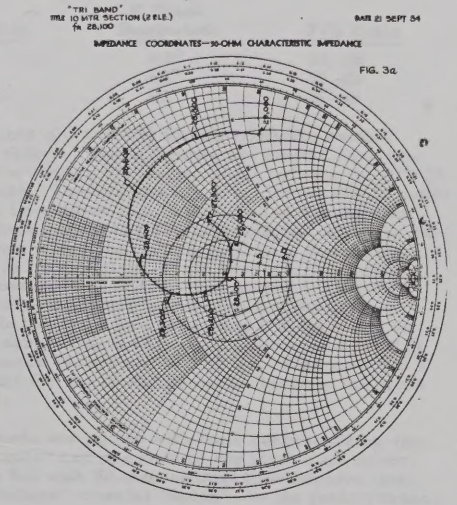
WIND LOAD AT 100 M.P.H.
300 LBS

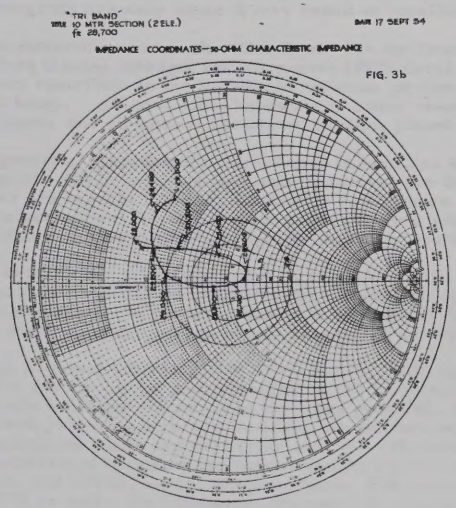
RECOMMENDED SUPPORT MAST
2" O.D. SEAMLESS STEEL .134 WALL

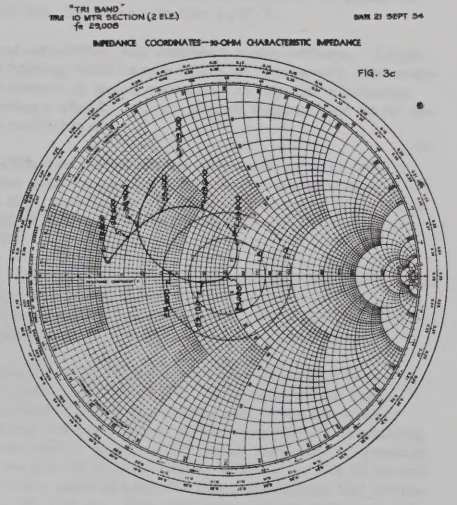
THE MFR RESERVES THE RIGHT TO MAKE CHANGES IN DESIGN, MATERIALS, SPECIFICATIONS AND PRICES WITHOUT NOTICE.









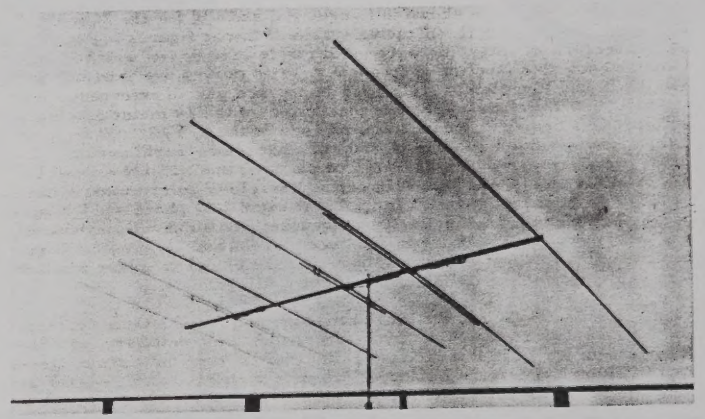


Representative polar patterns for 10 meter section of the Telrex "Tri-Band" array is shown in upper left figure. Impedance plots for three tuning points are shown in figures 3a, b and c.

telrex INC. ASBURY PARK, N. J.

telrex "TRI-BAND"

NEW!! TELREX REVOLUTIONARY "TRI-BAND" PRE-TUNED AND MATCHED 3 BAND ARRAY



Specifications

Boom 22' long, 3" OD	2 El on 10 M director and dipole
3-1/2" Reinforcing Sections	2 El on 15 M director and dipole
Total Weight: 86 lbs.	2 El on 20 M reflector and dipole
Complete with special "T" transformers and coaxial 1/2 wave "Baluns".	$248.00 F.O B., Asbury Park, New Jersey

Here at last the most practical method of hi-gain performance with a simple to install all-in-one unit guaranteed to outperform any single 2 element beam known to the art today. All incorporating the famous Telrex Coaxial Half-Wave "Balun" "Perfect Match" for highest S/N ratio, minimum interference, uni-directional balanced pattern.

The ideal array for use with the excellent Multi-Band transmitters now on the market such as Barker-Williamson, Collins, Johnson, World Radio, Sonar, etc. Tuned and matched to 52 ohm coaxial such as RG8U, RG14U, etc.

The Telrex "Tri-Band" is a precision tuned and matched 10, 15, and 20 meter transmitting or receiving array utilizing an all-in-line one boom design which enables us to provide less costlier three band operation with an actual improvement over singly stacked (one over the other) arrays using the same quantity of elements. This new, practical approach to multi-band operation using all elements in line on one boom actually employs the lower or higher frequency arrays (or both) as additional reflector or director; both actions depending on the array in use. For instance, when the 10 meter array is in use, the 15 and 20 meter elements provide additional gain and F/B ratio because in actuality the 15 meter array acts as a 10 meter reflector. When the 15 meter array is in use, the 10 meter elements provide some director action while the 20 meter array provides some reflector action; (thus, the F/B ratio on both the 10 and 15 meter arrays is far in excess of the F/B ratio normally possible with single two element beams.) When the 20 meter array is in use, the 10 and 15 meter arrays provide some beam compacting in the H and E plane; thus, increasing gain and reducing qrm. In addition, the one boom configuration makes possible less expensive installations than multi-band stacked rotaries which require costlier masting and towers which are more difficult to install and service. This configuration cannot be carried to more than 2 elements per band though we visualize the possibility of using 3 element on 20, 2 element on 15, and 2 element on 10 meters if quantity warrants.

The performance specifications of the "Tri-Band" array in abstracted form are shown in the following table:

Antenna	Gain Over 1/2 Dipole	E Plane Beamwidth	F/B Ratio
10 Meters	5.6	64°	24 db
15 Meters	5.6	65°	21 db
20 Meters	5.4	62°	15 db

The impedance characteristics are shown in figures 1(a) and 1(b) for the 20 meter section and figures 3(a), 3(b), and 3(c) for the 10 meter section. These figures are Smith Chart impedance plots with frequency. Standing wave ratio circles are drawn which indicate the S/W/R variation of each antenna as a function of frequency. Two curves are provided for the 20 meter band, three for the 15 and 10 meter bands. Each impedance plot is referred to a particular tuning point. Thus, figure 1(a) shows the impedance plot of the 20 meter antenna when the antenna is assembled for a center resonant frequency where the S/W/R will be 1./1 or unity; for instance, the array assembled to our 14,250 kc. dimensions would have a 1./1 match at 14,250 kc. (unity match referred to a 52 ohm coaxial line) and will not exceed 1.5 between the frequencies of 14,110 and 14,400 kc. This setting therefore covers most of the band with an acceptable S/W/R of less than 1.5 to 1. In the event that phone and CW operation is desired, the array is assembled to our 14,100 measurements which will provide unity S/W/R at 14,000 and allows operation within 1.5 to 1 between 14,000 and 14,290 kc. Figures 2 and 3 show the impedance plots for specified tuning point for the 15 and 10 meter bands in the same way as had been explained for the 20 meter band.

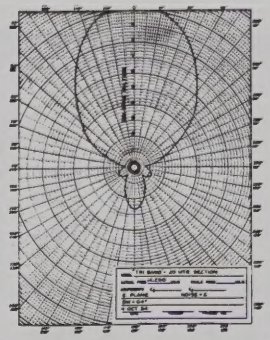
Horizontal polar patterns for each of the three bands are shown with their corresponding impedance plots. These patterns are perfectly balanced and are free of any significant minor lobes. Each section of the "Tri-Band" array is fed with 52 ohm coaxial transmission lines through a half-wave "Perfect Match" "Balanced Pattern" coaxial "balun" --- the perfect transition from unbalanced transmission line to balanced non-split dipole load through a special "T Match" optimum coupling transformer. The "Balun" is actually a phase shift network and 4/1 step-up transformer which enables us to match at a higher impedance; namely, 208 ohms which provides an improvement in S/N ratio. NOTE: 75 ohm coaxial cable may be used for emergency use only since it may result in considerable increase in the S/W/R.

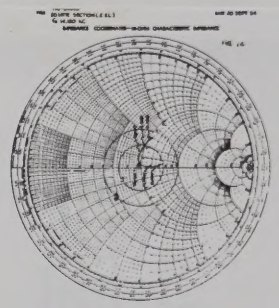
The materials used in the "Tri-Band" are the finest available for outdoor installations. Lightweight highest strength non-corrosive 61ST6 dural tubing with large ratio to frequency elements which contribute to the broadband optimum performance is used exclusively for the elements and boom. All electrical hardware is either stainless steel, silver plated copper, or pure aluminum, and structural hardware is double plated cadmium.

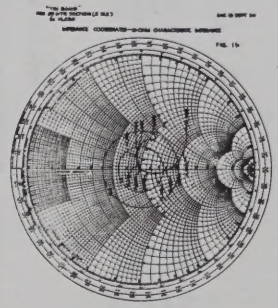
In general, operating the "Tri-Band" is identical with operating three separate arrays and it requires three separate transmission lines, one for each antenna. The three transmission lines are brought into the transmitter room where they can be connected to the transmitter and receiver either through a patch panel equipped with SO259 female connectors or by means of a rotary coaxial switch such as the "Bird" or equal.

As with all our pre-tuned and matched arrays, the "Tri-Band" should be mounted high and clear of natural or artificial obstructions. In general, for the best results, heights of 60' or higher are suggested. In no case should the "Tri-Band" be mounted less than 34' above the ground if the superior performance of this array is to be maintained.

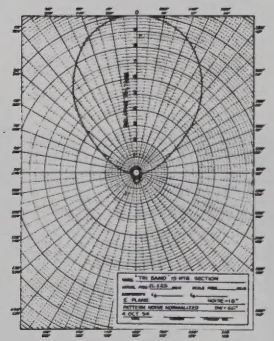
Each separate antenna of the "Tri-Band" is individually pre-tuned and adjusted at the factory to the portion of the band specified by the customer; viz, CW or phone, or centered to both. Merely assemble the array to the stops provided, connect your transmission lines to proper coaxial junction blocks on the boom and you are ready for operation with no tuning or matching adjustments. For any particular setting -- the beamwidth, gain, F/B ratio and match remain practically at optimum for approximately 150 kc. on the 20 meter band, 110 kc. on the 15 meter band, and 300 kc. on the 10 meter band. The customer should specify his preference for phone or CW or both. For instance, we normally suggest 14,230 kc. for optimum phone work on 20 and 14,100 if CW and phone is contemplated on 20 meters. Of course, no matter what is specified we can provide measurements for assembly to any desired operative point which can be accomplished at the customer's site. While the Telrex "Tri-Band" is specifically a 10, 15, and 20 meter array, we could provide other combinations on special order.

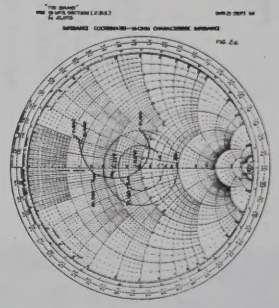


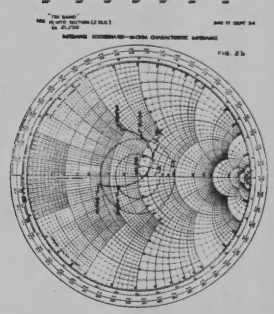


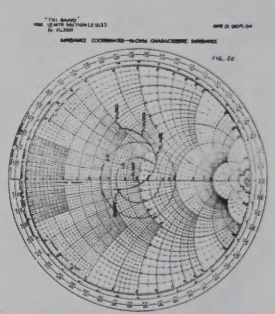


Representative polar patterns for 20 meter section of the Telrex "Tri-Band" array is shown in upper left figure. Impedance plots for two tuning points are shown in figures 1a and b.





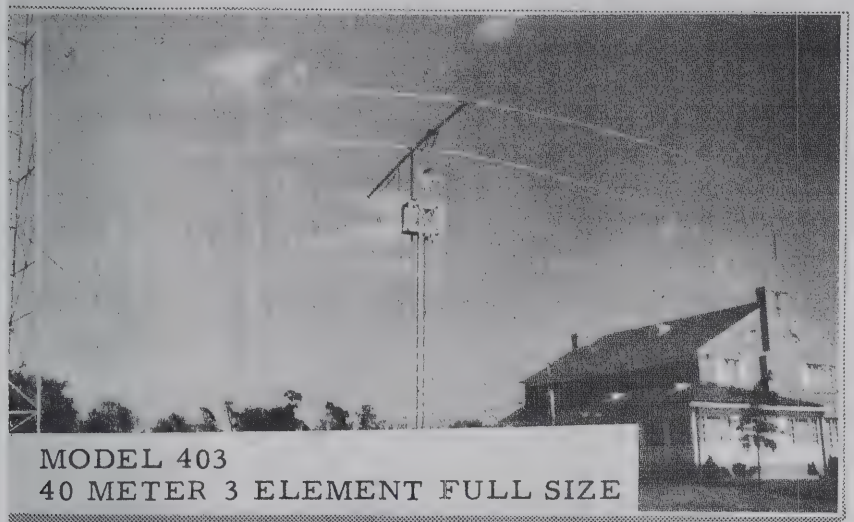




Representative polar patterns for 15 meter section of the Telrex "Tri-Band" array is shown in upper left figure. Impedance plots for three tuning points are shown in figures 2a, b and c.

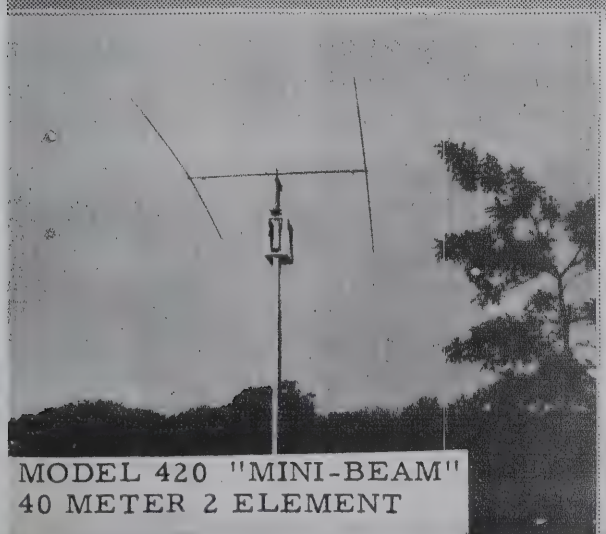
telrex PRECISION PRE-TUNED

40 METER ROTARIES



MODEL 403
40 METER 3 ELEMENT FULL SIZE

MODEL 402
40 METER 2 ELEMENT FULL SIZE



MODEL 420 "MINI-BEAM"
40 METER 2 ELEMENT

"BEAMED POWER - PERFECT MATCH"

"BALANCED PATTERN"
UNI-DIRECTIONAL ARRAY

- SINGLE HOLE MOUNTINGS
- LABORATORY TUNED NO CUT AND TRY
- ENGINEERED FOR LIFETIME SERVICE
- FAST, EASY, COMPLETELY FOOLPROOF ASSEMBLY
- DESIGNED TO WITHSTAND WINDS UP TO 75 MPH VELOCITY

Here are tried and proven Telrex "Beamed Power" Rotaries for 40 - Meters. Durable, lightweight, minimum bulk design and construction ---field tested for over one year and approved for ease of installation and long service life.

Accurately pre-tuned and matched to provide dependable, premium 'top-man-on-the-frequency' performance.

MODEL 420

2-element, large aperature 40-Meter "MINI-BEAM" --- 3" x 13 ft. Dural Boom with 3-1/2" dia, boom reinforcing sections. Elements 41 ft. long overall. Gain 3.4 db; F/B ratio 14 db. Resonated with HI-Q inductors, link coupled to 52 ohm coaxial cable at SO-259 connector. Approximate weight 44 lbs.

AMATEUR NET $180.00
F.O.B. Asbury Park, N.J.

MODEL 402

2-element, full size 40-Meter Beam --- 3" x 13 ft. Dural Boom with 3-1/2" dia. reinforcing sections. Tapered elements half-wavelength long overall. Resonated with hairpins, fed and matched with coaxial half-wave balun terminated at terminal block with SO-259 connectors. Gain 5.6 db; F/B ratio 16 db; 52 ohm coaxial feed; approximate weight 60 lbs.

AMATEUR NET $275.00
F.O.B. Asbury Park, N.J.

MODEL 403

3-element, full size 40-Meter Beam --- 3" x 29 ft. Dural Boom with 3-1/2" dia. boom reinforcing sections. Tapered half-wavelength elements. Resonated with hairpins, fed and matched with coaxial half-wave balun terminated at terminal block with SO-259 connectors. Gain 8.3 db; F/B ratio 19 db; 52 ohm coaxial feed. Approximate weight 92 lbs. All the above rotaries are designed for single hole mounting to 2" dia, high strength steel mast.

AMATEUR NET $330.00
F.O.B. Asbury Park, N.J.

telrex INC. ASBURY PARK, N. J.

TELREX BEAMED-POWER ARRAYS — CONDENSED SPECIFICATION

PRETUNED MATCHED AND CALIBRATED FOR OPTIMUM PERFORMANCE

DESCRIPTION	3/4 MTR	1-1/4 MTR.		2 METER SERIES						6 MTR. SERIES				10 MTR. SERIES				11 MTR	15 MTR. SERIES				20 METER SERIES					40 MTR.		TRI BAND	DUO-BAND		
	OPTIMUM SPACED 15 ELEMENT	OPTIMUM SPACED 5 ELEMENT	OPTIMUM SPACED 15 ELEMENT	OPTIMUM SPACED ECONOMY MODEL 3 ELEMENT	OPTIMUM SPACED DELUXE ECONOMY MODEL - 5 ELEM.	OPTIMUM SPACED DELUXE ECONOMY MODEL - 6 ELEM.	OPTIMUM SPACED DELUXE ECONOMY MODEL - 8 ELEM.	OPTIMUM SPACED DELUXE CIRCULAR POLARIZED-16 EL.	OPTIMUM SPACED DELUXE 15 ELEMENT	OPTIMUM SPACED DELUXE ECONOMY MODEL - 3 ELEM.	OPTIMUM SPACED DELUXE ECONOMY MODEL - 4 ELEM.	DELUXE ECONOMY MODEL 6 ELEMENT	OPTIMUM SPACED SUPER DELUXE 6 ELEMENT	EXPEDITION MODEL FULL SIZE 2 ELEMENT	MEDIUM SPACED DELUXE ECONOMY MODEL 3-ELEM	MEDIUM SPACED SUPER DELUXE 3-ELEMENT	OPTIMUM SPACED SUPER DELUXE MODEL 3- ELEM.	MEDIUM SPACED DELUXE ECONOMY MODEL 3-ELEM.	EXPEDITION MODEL FULL SIZE 2 ELEMENT	"MINI-BEAM" ECONOMY MODEL 3-ELEMENT	MEDIUM SPACED DELUXE MODEL 3-ELEMENT	OPTIMUM SPACED SUPER DELUXE MODEL 3-ELEM.	"MINI-BEAM" DELUXE MODEL 2 ELEMENT	EXPEDITION MODEL FULL SIZE 2 ELEMENT	MEDIUM SPACED DELUXE MODEL 3 ELEMENT	MEDIUM SPACED SUPER DELUXE 3 ELEMENT	OPTIMUM SPACED SUPER DELUXE 3 ELEMENT	"MINI-BEAM" DELUXE MODEL 2 ELEMENT	FULL SIZE SUPER DELUXE 3 ELEMENT	DELUXE "TRI-BAND" 10-15 -20 MTR. 7 ELEMENT	DUO-BAND DELUXE 10-15 2 ELEMENTS ON EACH	DUO-BAND DELUXE 15-20 2 ELEMENTS ON EACH	DUO-BAND DELUXE 10-20 2 ELEMENTS ON EACH
MODEL NUMBER	3/4 M-15C	1/4 M-5C	1/4 M-15C	2M-3C	2M-5C	2M-6C	2M-8C	2M-808	2M-15C	6M-3D	6M-4C	6M-6C	6M-624	10X-26	10M-309	10M-310	10M-314	11M-309	15X-28	1530C	15M-312	15M-318	20M-DC	20X-212	20M-316	20M-318	20M-326	40M-214	40M-56-365	TB-7E	DB-2E-1015	DB-2E-1520	DB-2E-1020
GAIN IN DB OVER TUNED DIPOLE	17.2	12.5	17.2	10.0	11.6	13.2	15.5	11.5	17.2	10.0	12.0	15.0	15.0	5.5	8.4	8.9	10.0	8.4	5.5	7.0	8.9	10.0	3.5	5.5	8.4	9.0	10.0	3.6	8.3	*	5.5	5.5	5.5
F B - RATIO IN DB	26	25	26	18	23	22	26	26	26	26	28	22	23	14	28	30	21	26	14	28	28	21	18	14	26	30	21	16	25	●	18	18	18
HORIZONTAL BEAMWIDTH	27°	48°	27°	55°	51°	46°	35°	35°	27°	55°	58°	45°	44°	65°	62°	61°	56°	62°	65°	63°	59°	56°	74°	65°	56°	55°	56°	74°	58°	64°	64°	64°	64°
VERTICAL BEAMWIDTH	28°	53°	28°	80°	52°	51°	38°	38°	28°	80°	62°	49°	49°	95°	97°	82°	76°	98°	95°	97°	81°	76°	130°	101°	85°	82°	79°	136°	90°	110°	110°	110°	110°
WIND SURFACE AREA IN SQ. FT.	.90	.50	1.72	.29	.45	.73	1.23	1.65	2.23	.95	1.20	2.60	3.80	2.09	2.03	2.55	2.90	2.03	2.62	1.50	5.92	3.98	2.3	5.98	6.02	8.53	6.27	7.15	12.6	9.27	5.5	7.2	6.2
WIND LOAD AT 100 M.P.H. (IN LBS.)	26	15	50	9	13	21	36	41	66	28	35	77	116	61	59	75	86	59	78	48	171	121	71	189	188	266	196	224	406	293	175	230	196
BOOM LENGTH	10'-6"	42"	19'-6"	34"	5'	8'-6"	13'-9"	14'-6"	27-9 WITH BOOM STRUTS	7'-7"	12'	23'-4 WITH BOOM STRUTS	23'-4 WITH BOOM STRUTS	6'	9'	10'	14'	9'	8'	12'	12'	18'	10'	12'	16'	18'	26' WITH BOOM STRUTS	14'	29'-4" WITH BOOM STRUTS	14'	12'	12'	14'
BOOM DIAMETER (OUTSIDE)	1-1/2"	7/8"	1-1/2"	7/8"	7/8"	1"	1-1/4"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	2"	2"	1-1/2"	2"	2"	1-1/2"	2"	2-1/2"	2"	2"	2"	3"	2"	3"	3"	3"	3"	2"	2"	2"	2"
LONGEST ELEMENT LENGTH (APPROX.)	15"	28"	28"	3'-6"	3'-6"	3'-6"	3'-6"	3'-6"	3'-6"	8'-8"	8'-8"	8'-8"	8'-10"	15'	18'-3"	17'	18'-4"	19'	10'-5"	13'-7"	24'-6"	25'	19'	34'	36'	36'	32'-8"	46'	64'	32'-10"	25'-8"	32'-10"	32'-10"
TURNING RADIUS (APPROX.)	5'-8"	26"	11'-6"	3'	3'-6"	5'-6"	7'-6"	8'-4"	14'	6'	8'	13'	14'	10'	11'	10'	12'	11'	12'	8'-6"	13'-8"	15'	12'	18'	20'	20'	21'	24'	38'	18'	15'	17'	15'
SUPPORT MAST DIAMETER REQD.	1" OR 1-1/2"	1" OR 1-1/2"	1" OR 1-1/2"	1" OR 1-1/2"	1" OR 1-1/2"	1" OR 1-1/2"	1" OR 1-1/2"	1" OR 1-1/2"	1" OR 1-1/2"	1-1/2"	1-1/2" OR 2"	1-1/2" OR 2"	2"	1-1/2" OR 2"	1-1/2" OR 2"	2"	2"	1-1/2" OR 2"	1-1/2" OR 2"	1-1/2" OR 2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"
ANTENNA NET WT. IN POUNDS (APPROX.)	11	2-1/2	14	1-1/2	2-1/2	2-3/4	6	11	15	5	8	16	36	13	10	21	25	12	15	10-	32	35	12	41	18	50	54	44	90	53	23	31	32
SHIPPING WEIGHT IN POUNDS (APPROX.)	13	3	16 5	2-1/4	3	4	10	15	20	7	10	20	44	17	14	27	30	15	22	12-	45	48	16	62	40	58	67	66	130	63	26	36	38
SHIPPING CONTAINER SIZE (APPROX.)	3"x8" x 8'	4"x8" x3'-5"	3"x8" x 11'	3"x8" x 3'	3"x4" x 5'-5"	4"x7" x 7'	4"x7" x 7'	4"x7" x7'	4"x7" x15'	4"x4" x 8'	4"x4" x 12'	6"x6" x 12'	6"x6" x12'	4"x11" x6'	4"x3" x 9'	4"x4" x 10'	3"x7" x 14'	4"x4" x 12'	4"x6" x 8'	4"x8" x 7'	4"x4" x 12'	4"x4" x 12'	7"x8" x16-2	7"x19" x 12'	6"x8" x 12'	6"x12" x 12'	8"x12" x 14'	6"x10" x 15'	6"x15" x 18'	4"x12" x18'-6"	6"x6" x 12'	6"x6" x 12'	6"x6" x 10'
PRICE F.O.B. ASBURY PARK N.J.	$29.00	$6.95	$31.00	$5.95	$7.75	$12.50	$13.75	$33.50	$39.25	$16.25	$19.75	$57.50	$149.00	$54.00	$39.50	$62.50	$96.00	$41.50	$59.00	$46.00	$105.00	$130.00	$57.00	$105.00	$130.00	$175.00	$198.00	$180.00	$365.00	$158.00	$106.00	$132.00	$120.00

TELREX ARRAYS ARE CALIBRATED FOR ASSEMBLY TO OUR EXACT SPECIFICATIONS, AND TELREX ARRAYS WILL EXHIBIT CLOSE-TO-UNITY SWR WHEN MOUNTED IN THE CLEAR AND AT OUR RECOMMENDED HEIGHT OR HIGHER. IMPEDANCE, SWR, AND GAIN-BEAMWIDTH RATE OF CHANGE VS. FREQUENCY VARIES SLIGHTLY WITH EACH MODEL. SEE SEPERATE TECHNICAL SHEET FOR EACH ANTENNA FOR EXACT DATA.

EVERY TELREX ARRAY IS PRECISION TUNED, MATCHED AND CALIBRATED (CHART SUPPLIED WITH EACH ANTENNA) SO CUSTOMER CAN ASSEMBLE HIS ARRAY FOR OPTIMUM RESULTS AT VARIOUS PORTIONS OF THE BAND.

* 3 Elements 7 DB on 10 Meters, 2 Elements 5.5 DB on 15 Meters, 2 Elements 5.5 DB on 20 Meters Fed With 52 OHM Coax

• F/B ratio 19 db on 15 and 20; 22 db on 10

THE MFG. RESERVES THE RIGHT TO MAKE CHANGES IN ALL SPECIFICATIONS AND PRICES SHOWN ABOVE. ALL PRICES ARE F.O.B. ASBURY PARK N.J. (SPECIAL WOODEN SHIPPING BOXES FOR OVERSEAS SHIPMENT WILL BE APPROX. $10.00 TO $18.00 ADDITIONAL TO ABOVE PRICES.)

DIAMOND "E" COLD DRAWN SEAMLESS 1025 TENSILE MECHANICAL STEEL TUBING

1-1/2" O.D. x .125 x 16 ft	$26.00
1-1/2" O.D. x .156 x 16 ft	28.00
1-1/2" O.D. x .250 x 14 ft	22.00
2" O.D. x .134 x 8 ft	17.00
2" O.D. x .134 x 16 ft	30.00
2" O.D. x .250 x 12 ft	$34.00
2" O.D. x .250 x 16 ft	45.00
2" O.D. x .250 x 20 ft	56.00

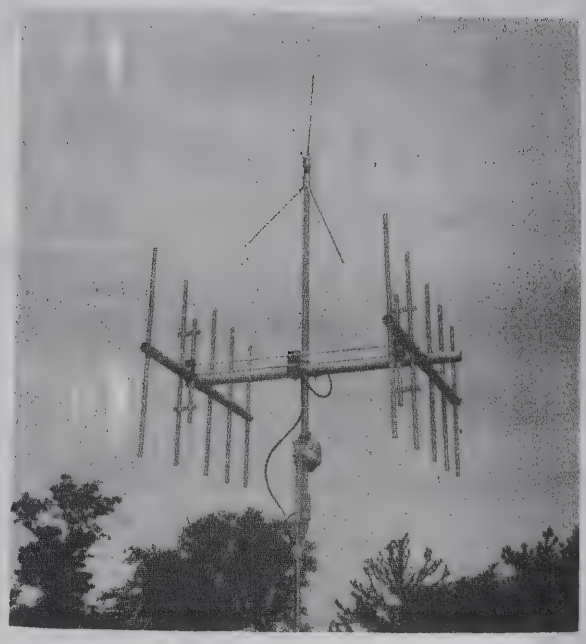
TELREX BEAM ROTATOR AND DIRECTION-CONTROL INDICATOR SYSTEM

Model 200RS HEAVY-DUTY $360.00

Rotators and Indicators for other commercial applications designed and built to order. Prices on request.

PLEASE TURN PAGE for OTHER AVAILABLE ARRAYS

telrex ENGINEERING DATA



MODEL CAP 148

Combined omni-directional and uni-directional vertically polarized arrays for C.A.P. Communication Service.

Precision tuned and matched.

Model C-A-P 148 is specially designed to enable the master C.A.P. Station to maintain constant, dependable contact with low powered mobile units.

The equipment consists of a high gain 10 element (twin-5), 1/2 wave spaced, vertically polarized array, tuned to 148.2 mc, with an omni-directional broad-band unity-gain conical dipole for stand-by operation

The 10 element unit has a measured gain of 14.3 db, a front-to-back ratio exceeding 30 db, and a VSWR (to 50 ohm coax) of 1.1:1 at 148.2 mcs. (It will also operate at better than 1.3:VSWR over the 2 meter amateur band). The conical dipole is a unity gain broad band antenna, matched to 50 ohm coax with a S/W/R of 1.1:1.

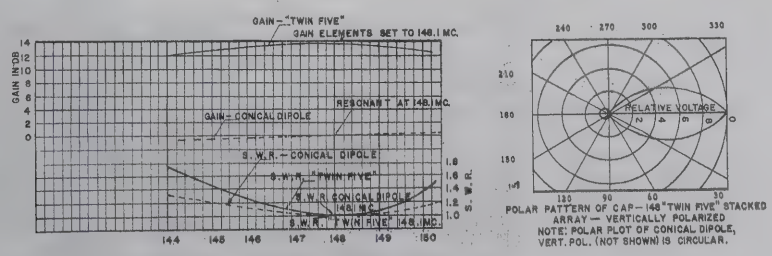
Model C-A-P 148 weighs 24 lbs. complete, and is equipped with a 10 foot mounting mast, as shown in the illustration. The entire array can be easily rotated by a good TV rotator equipped with a thrust bearing, even under high wind or ice loading. Designed to highest commercial standards for optimum performance with absolutely no adjustments required.

AVAILIBILITY: Shipment of Model C-A-P 148, 10 days after receipt of order.

NET PRICE: $112.50 f.o.b., Asbury Park, New Jersey.

PROCEDURE FOR OPERATION:

The conical omni-directional array is used for general calling or listening and the high gain beam is then rotated to proper direction to provide gains in excess of 14 db on reception and transmission.

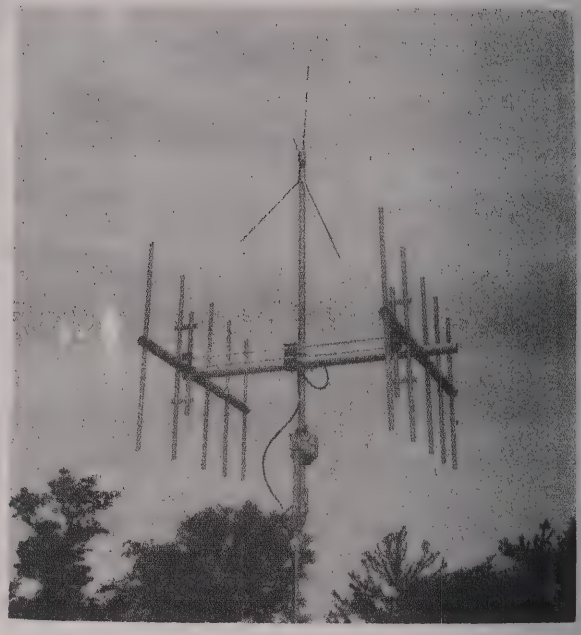


GAIN and S/W/R CURVES, and DIRECTIVITY PATTERN for 2 METER ROTARY, MODEL C A P—148.

A446
61054

telrex INC. ASBURY PARK, N. J.

telrex ENGINEERING DATA



MODEL CAP 148

Combined omni-directional and uni-directional vertically polarized arrays for C.A.P. Communication Service.

Precision tuned and matched.

Model C-A-P 148 is specially designed to enable the master C.A.P. Station to maintain constant, dependable contact with low powered mobile units.

The equipment consists of a high gain 10 element (twin-5), 1/2 wave spaced, vertically polarized array, tuned to 148.2 mc, with an omni-directional broad-band unity-gain conical dipole for stand-by operation

The 10 element unit has a measured gain of 14.3 db, a front-to-back ratio exceeding 30 db, and a VSWR (to 50 ohm coax) of 1.1:1 at 148.2 mcs. (It will also operate at better than 1.3:VSWR over the 2 meter amateur band). The conical dipole is a unity gain broad band antenna, matched to 50 ohm coax with a S/W/R of 1.1:1.

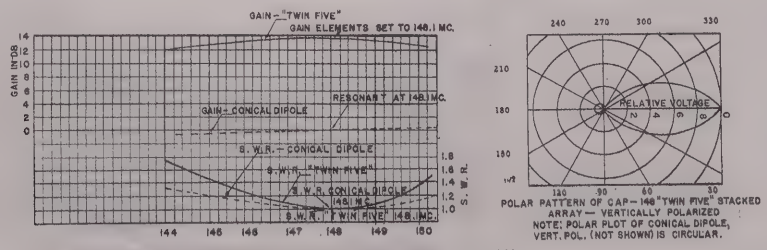
Model C-A-P 148 weighs 24 lbs. complete, and is equipped with a 10 foot mounting mast, as shown in the illustration. The entire array can be easily rotated by a good TV rotator equipped with a thrust bearing, even under high wind or ice loading. Designed to highest commercial standards for optimum performance with absolutely no adjustments required.

AVAILIBILITY: Shipment of Model C-A-P 148, 10 days after receipt of order.

NET PRICE: $112.50 f.o.b., Asbury Park, New Jersey.

PROCEDURE FOR OPERATION:

The conical omni-directional array is used for general calling or listening and the high gain beam is then rotated to proper direction to provide gains in excess of 14 db on reception and transmission.



GAIN and S/W/R CURVES, and DIRECTIVITY PATTERN for 2 METER ROTARY, MODEL C A P — 148.

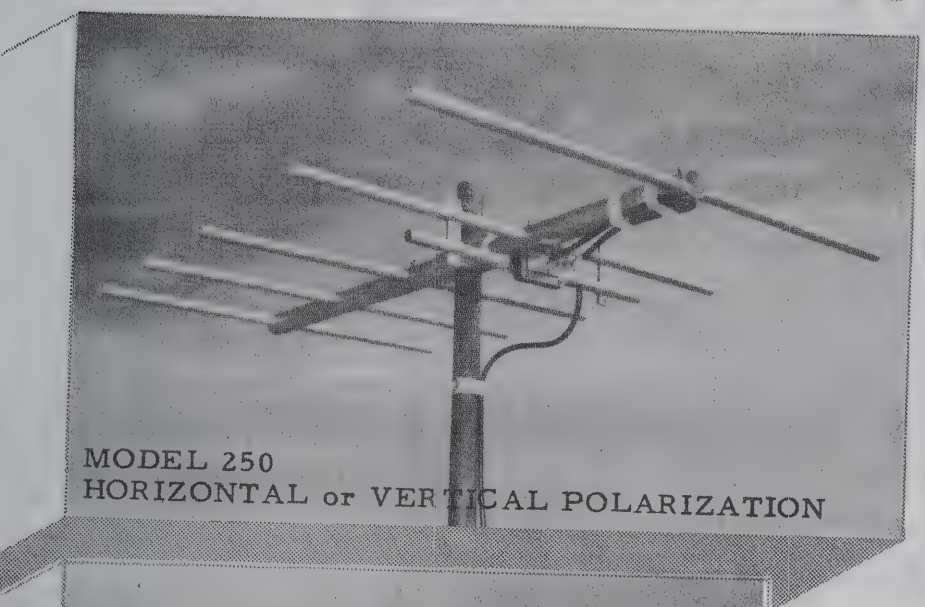
POLAR PATTERN OF CAP—148 "TWIN FIVE" STACKED ARRAY — VERTICALLY POLARIZED
NOTE: POLAR PLOT OF CONICAL DIPOLE, VERT. POL. (NOT SHOWN) IS CIRCULAR.

A446
61054

telrex INC. ASBURY PARK, N. J.

telrex PRECISION PRE-TUNED

2 METER ROTARIES

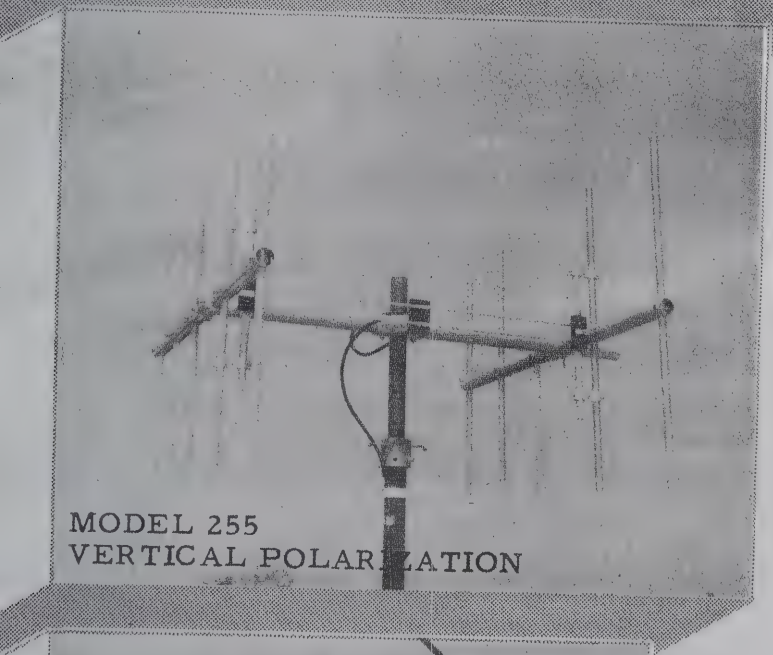


MODEL 250
HORIZONTAL or VERTICAL POLARIZATION

"BEAMED POWER - PERFECT MATCH"

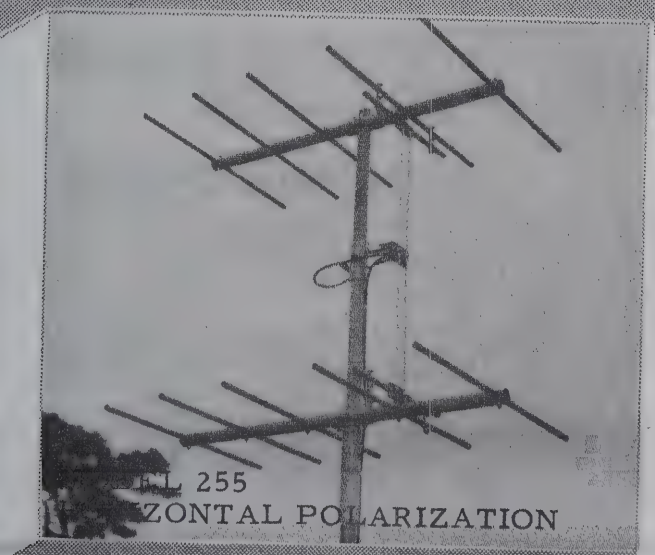
"BALANCED PATTERN"

UNI-DIRECTIONAL ARRAY



MODEL 255
VERTICAL POLARIZATION

- VERTICAL or HORIZONTAL POLARIZATION
- 144 - 148 Mc. WITHOUT ADJUSTMENT
- SINGLE HOLE MOUNTING
- LABORATORY TUNED NO CUT AND TRY
- ENGINEERED FOR LIFETIME SERVICE
- SPECIALLY DESIGNED FOR USE WITH TV ROTOR. OTHER ROTORS CAN ALSO BE ACCOMODATED
- FOOLPROOF ASSEMBLY IN A MATTER OF MINUTES



EL 255
ZONTAL POLARIZATION

MODEL 250 **List $45.00**

5 ELEMENT YAGI, VERTICAL or HORIZONTAL POLARIZATION. COMPLETE WITH COAXIAL "BALUN".

MODEL 255 **List $90.00**

"TWIN FIVE" (10 ELEMENT) 1/2-WAVE SPACED 5 ELEMENT YAGIES. VERTICAL or HORIZONTAL POLARIZATION. COMPLETE WITH CROSSBOOMS, MATCHING BARS and COAXIAL "BALUN".

FOR OTHER "BEAMED POWER"

A451

telrex INC. AMERICA'S STANDARD OF COMPARISON

telrex

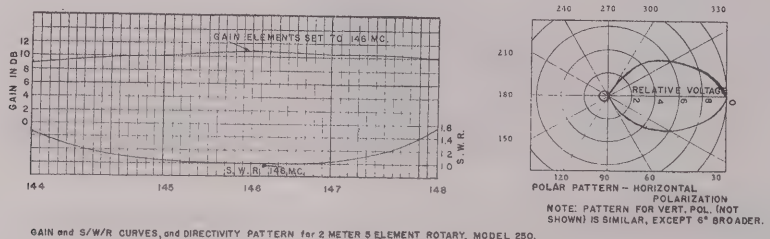
ENGINEERING DATA

TELREX MODELS 250 and 255
2-METER "BEAMED POWER-PERFECT MATCH" "BALANCED PATTERN" ROTARIES

MODEL 250 - 2 Meter, 5-Element yagi for Vertical or Horizontal Polarization

Model 250 is a "Beamed Power-Perfect Match" completely intergrated array, precision tuned and matched for peak gain, with exceptionally high signal-to-noise, and signal-to-interference ratios, and a resistive match to 50 ohm coax over the entire 144-148 mc. frequency range without any adjustment whatsoever. A coax half wave "balun" is incorporated, eliminating losses due to circulating RF on the coax ground shield, and insureing a balanced, symetrical pattern. Like its companion Telrex Rotaries (for 6, 10, 15, 20, and 40 meters), Model 250 is designed and built to highest commercial standards, is of all duraluminum construction, and is equipped with a single hole mounting. Provision is also made for horizontal or vertical polarization. It has been specially designed for use with a TV rotor. Other rotors can be accomodated.

Model 250 has a gain of 11.2 db., a F/B ratio of 28 db., and an S/W/R of 1.1:1. The beamwidth is 38° horizontally polarized. (See Polar Pattern below). The array weighs 8 pounds completely assembled, ready for erection.

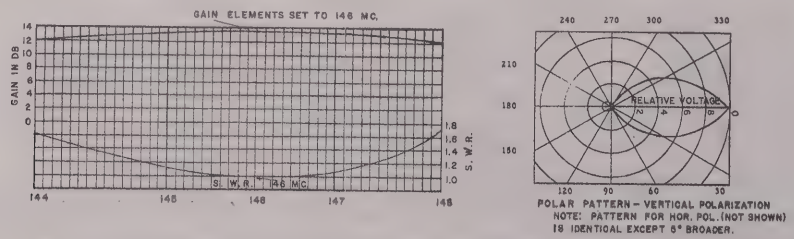


GAIN and S/W/R CURVES, and DIRECTIVITY PATTERN for 2 METER 5 ELEMENT ROTARY, MODEL 250.

MODEL 255 - 2-Meter "TWIN FIVE" (10 element) half wave spaced 5-Element yagies for Vertical or Horizontal Polarization.

Where greater gain is required, the Telrex half wave spaced "Twin Five" Model 255 should be chosen. This array consists essentially of two 5-element units, halv wave spaced and properly coupled by means of parallel stacking bars. It exhibits a gain of 14.3 db., a F/B ratio of 28 db. and a virtually perfect resistive match to 50 ohm coax over the entire 2 meter band. It has a S/W/R of 1.1:1, a beamwidth of 38° horizontally polarized and 33° vertically polarized. The complete array weighs 18 pounds when ready for erection.

Model 255, which is supplied complete with "balun", stacking bars, terminal board and connectors, and a crossboom for single hole mounting either vertically or horizontally polarized, will provide the ultimate in full band-high gain coverage and low angle radiation. Model 255 can also be rotated by a TV rotor. Other rotors can be accomodated.

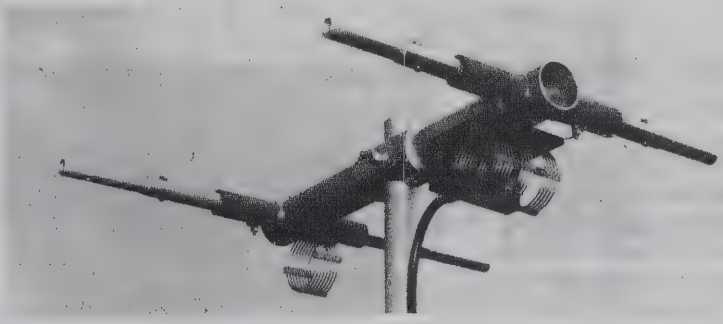


GAIN and S/W/R CURVES, and DIRECTIVITY PATTERN for 2 METER "TWIN FIVE" ROTARY, MODEL 255.

You're There with a

telrex "MINI-BEAM"

INCREASED PRODUCTION AND TREMENDOUS SALES VOLUME MAKE POSSIBLE THIS



NEW LOW PRICE

$55.50

~~Net $77.50~~

.O.B. Asbury Park, N.J.

MODEL 520

20-METER 2-ELEMENT PRE-TUNED "BEAMED POWER-PERFECT MATCH" ARRAYS

COMPACT SIZE:

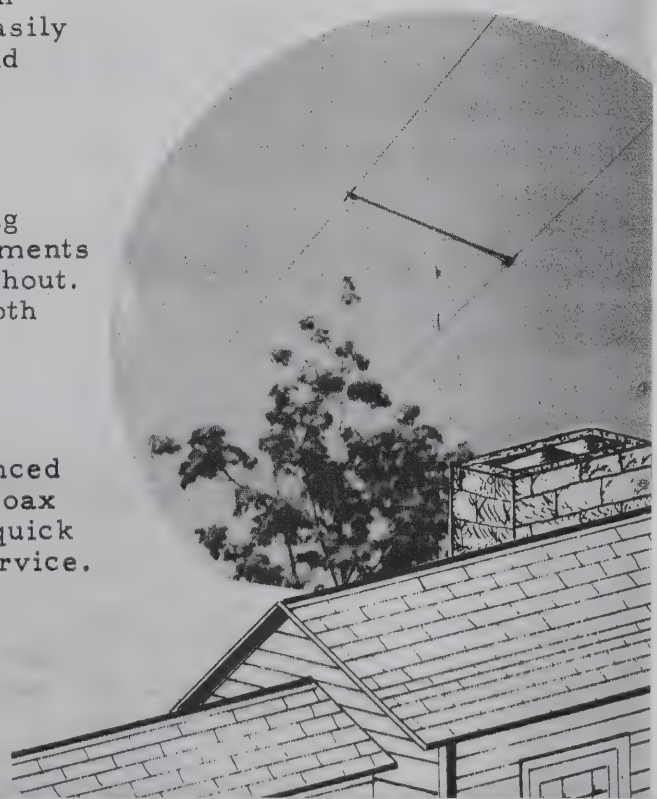
A high gain, high efficiency, compact 20 Meter Antenna designed to give true "Beamed Power" Rotary performance where space is restricted. Complete rotation in less than 11' turning radius. Total weight 11 lbs. Easily rotated with TV antenna rotator. Will outperform and outdistance many "home brew" 3 element antennas!

CONSTRUCTION:

82" x 2" OD boom with 2-1/2" OD center reinforcing section. 1-3/8" dia. mounting hole; 61ST6 dural elements and boom; Westinghouse "Micarta" insulation throughout. "Hi-Q" weatherproofed compensating inductors in both reflector and driven elements.

PERFORMANCE:

4.6 db. gain; S/W/R 1.1:1; 15 db. F/B ratio; "Balanced Pattern". Precision tuned and matched for 50 ohm coax feed. Fully calibrated and accurately machined for quick assembly - trouble free installation - dependable service.



A 450 - 2
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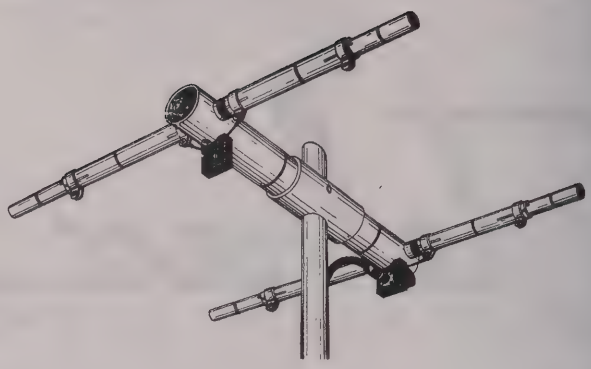
telrex INC. AMERICA'S STANDARD OF COMPARISON
"CONICAL V BEAMS"

ASBURY PARK
NEW JERSEY

telrex ENGINEERING DATA



MODEL: 520 - 20 METER - 2 ELEMENT "MINI-BEAM"

A high efficiency, compacted, 2 element 20 meter antenna designed to provide true "Beamed Power" Rotary Performance where space is restricted. Precision laboratory tuned and matched for optimum performance at your site!

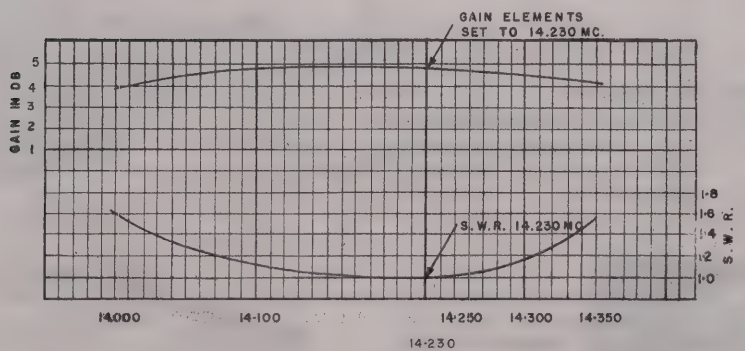
COMPACT SIZE: Approximately 7' long x 20 ' wide overall - requires approximately 11' radius for rotation. Net weight approximately 11 lbs. Easily rotated with any good TV antenna Rotator.

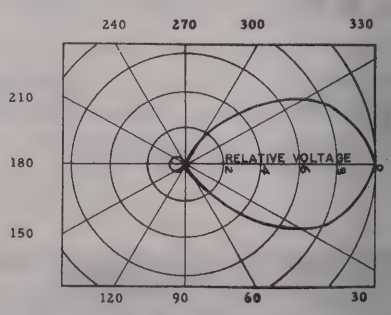
DESCRIPTION: Model 520 consists of a shortened reflector and driven element, both compensated with Hi-Q, weatherproofed fixed inductors. The driven element inductor incorporates a coupling link, terminating in a UHF connector for 52 ohm coax feed. May also be used with 72 ohm coax with little loss in efficiency.

PERFORMANCE DATA:

Gain	4.6 db.
F/B Ratio	15 db.
S/W/R	1.1:1 (to 52 ohm line)
Beamwidth	58° to 1/2 power point. Excellent "Balanced Pattern".
Termination	UHF connector type SO-239 on terminal panel. (Engages Plug type PL-259)

CONSTRUCTION: Main Boom 82" x 2" OD with 2-1/2" OD center reinforcing sleeve with 1-3/8" dia. single mounting hole. Reflector 20' overall; Driven element 19' overall. 61ST6 Dural elements and boom; Westinghouse Micarta insulation; Hi-Q inductors - fully weatherproofed.





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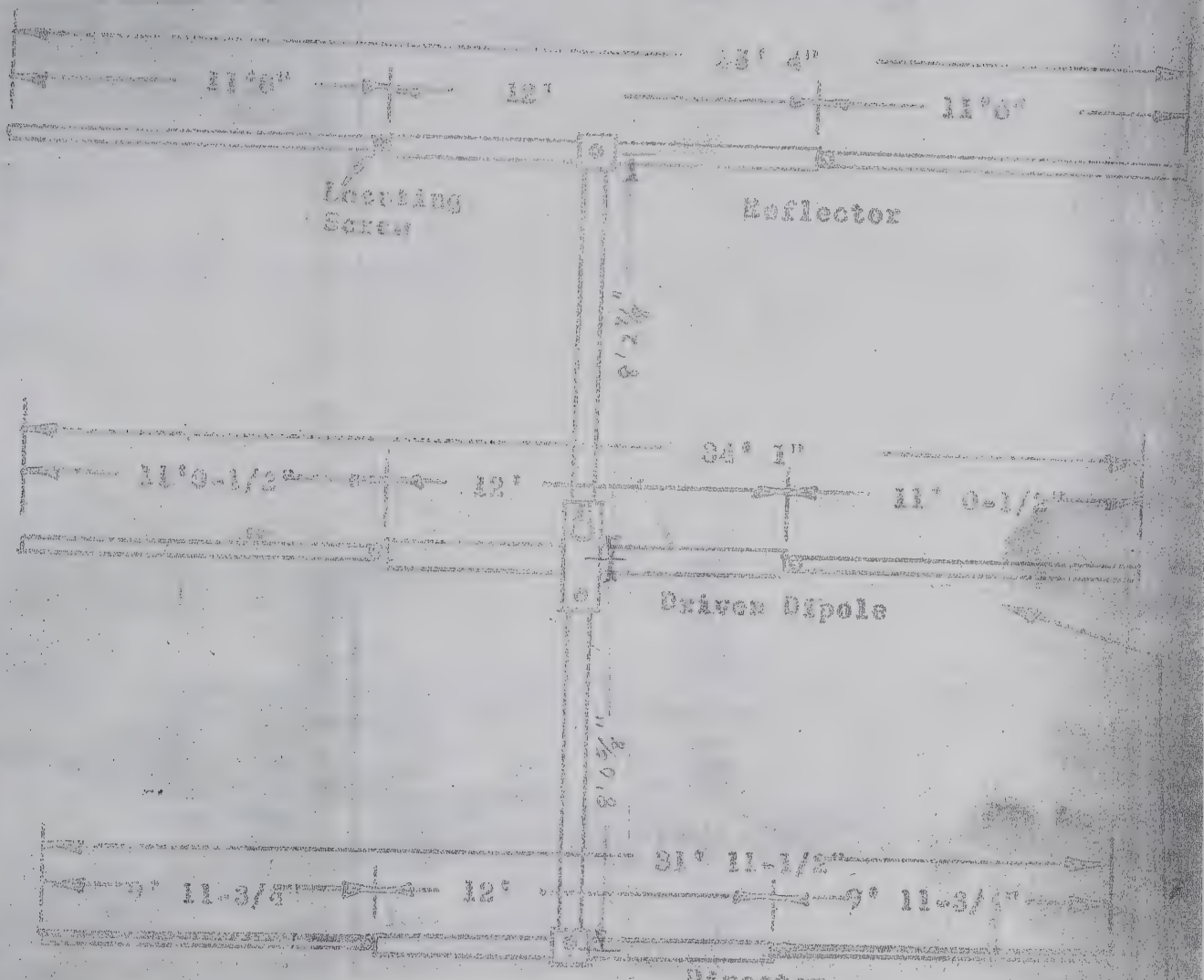
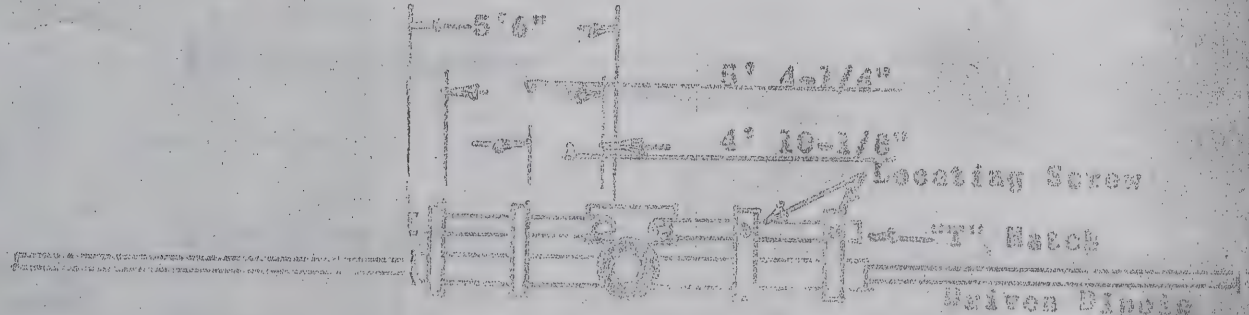
62554

telrex INC. ASBURY PARK, N. J.





"T" Transformer Assembled to Driven Dipole

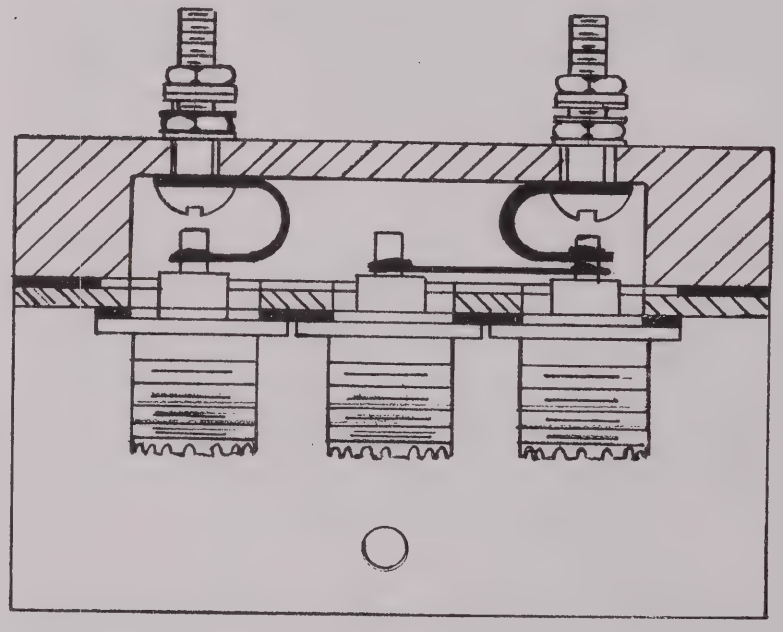
Dimensions Shown Are For 14.230 MCs.

Assembly Diagram - Rotary Beam
20-METER, 3-ELEMENT
MODEL 503

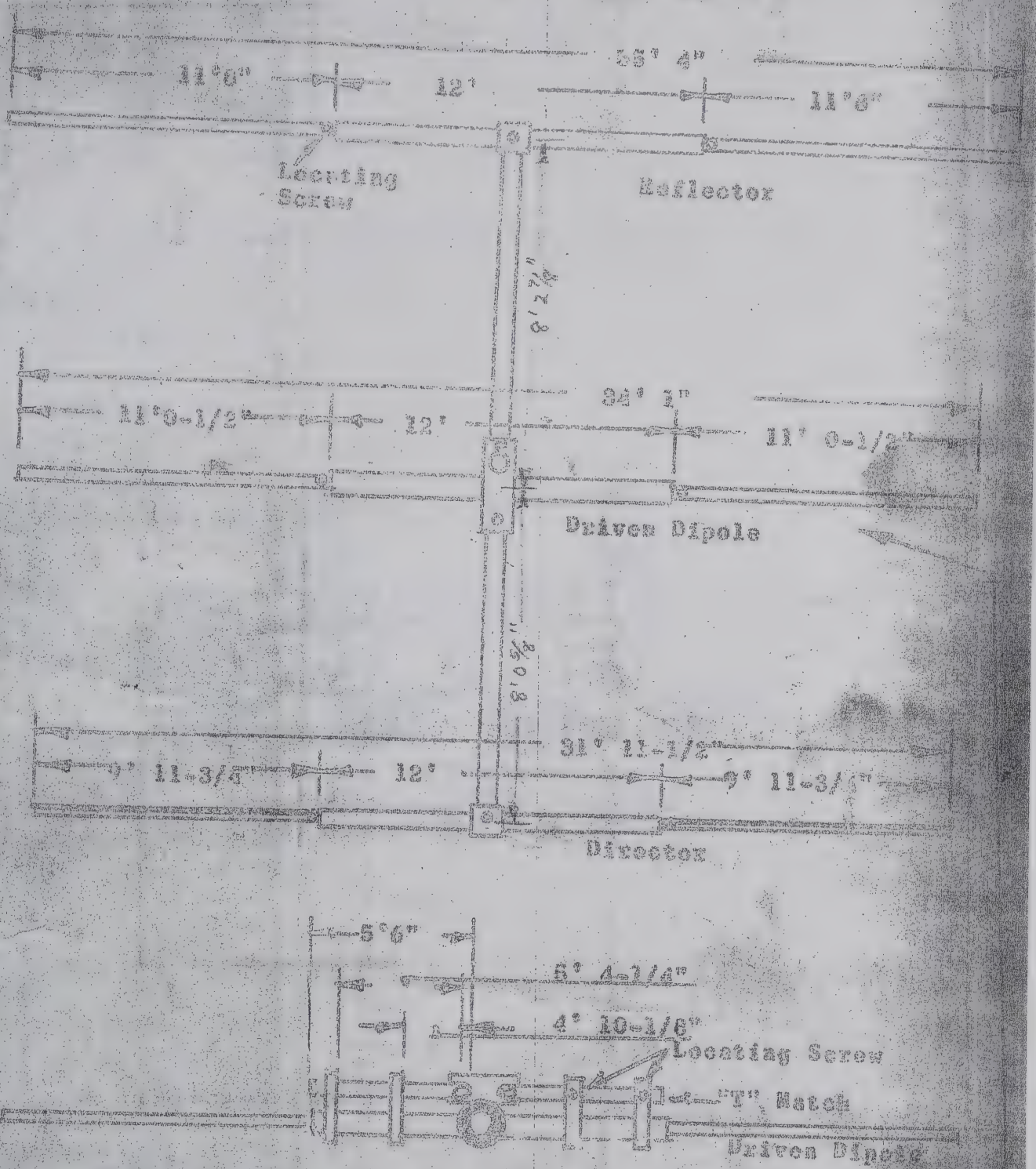
TELREX, INCORPORATED Asbury Park, N.J.

VI.

Cut away view showing construction and inner connections of our Junction Terminal Block.



To check for short or open, the "T" match bars and balun must be disconnected.



"T" Transformer Assembled to Driven Dipole

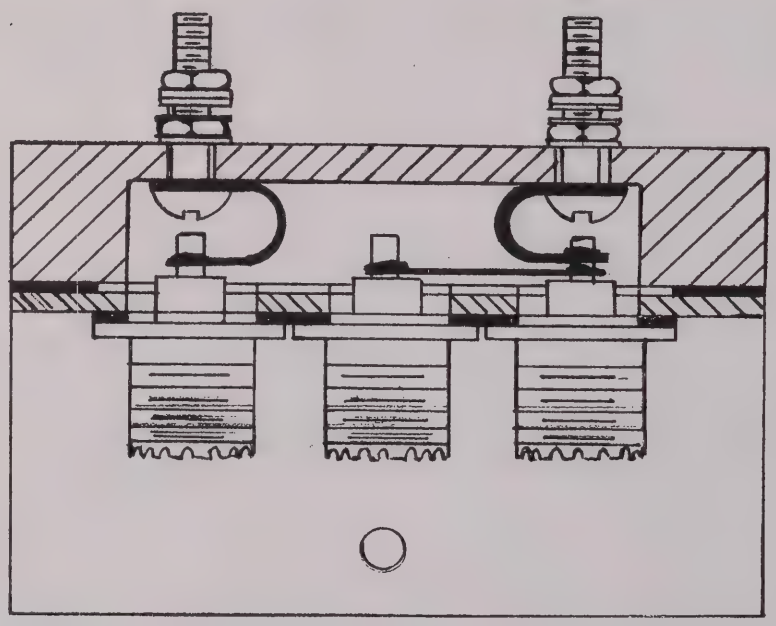
Dimensions Shown Are For 14.250 MCS.

Assembly Diagram - Rotary Beam
20-METER, 3-ELEMENT
MODEL 503

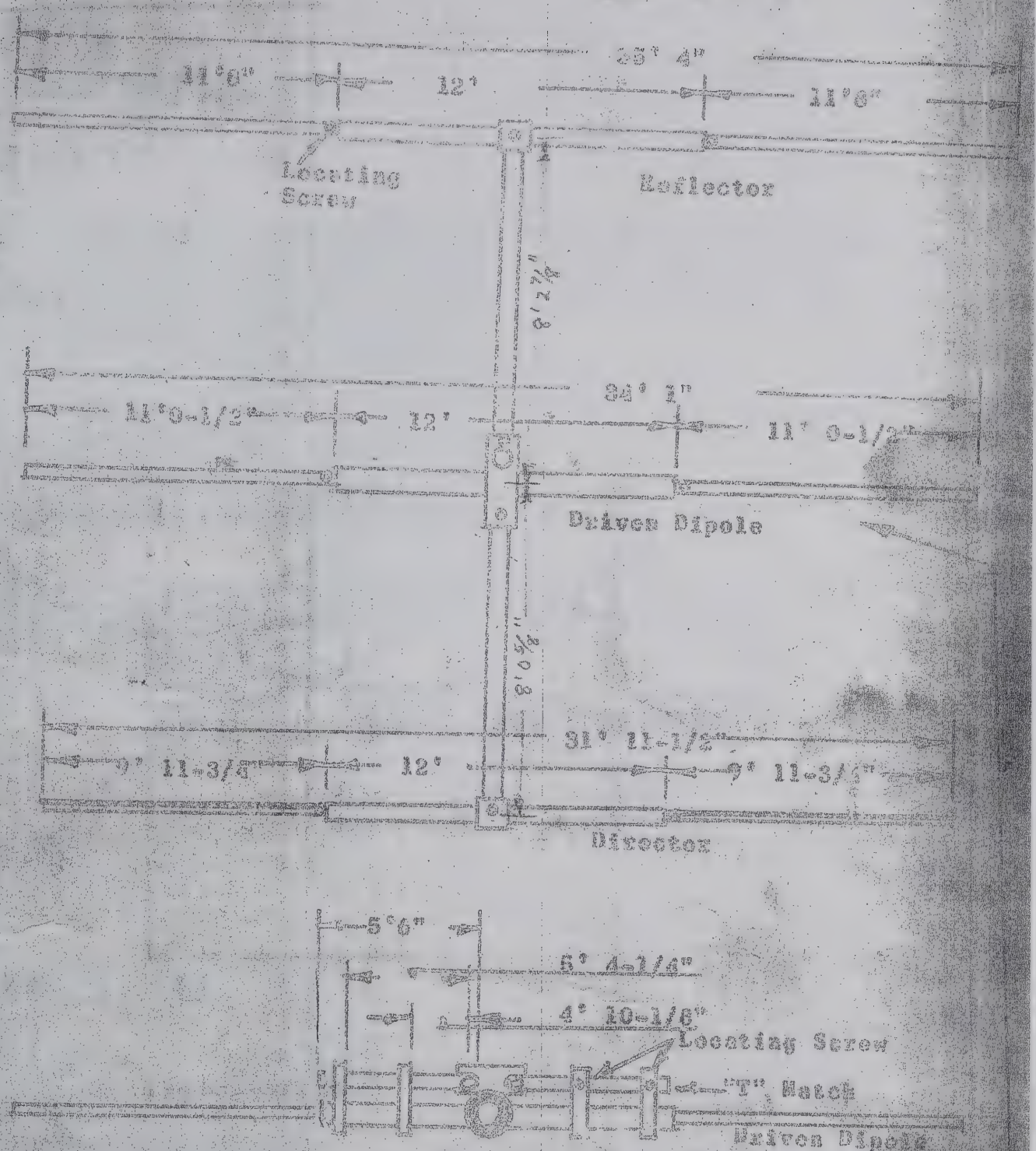
TELREX, INCORPORATED Asbury Park, N.J.

VI.

Cut away view showing construction and inner connections of our Junction Terminal Block.



To check for short or open, the "T" match bars and balun must be disconnected.



"T" Transformer Assembled to Driven Dipole

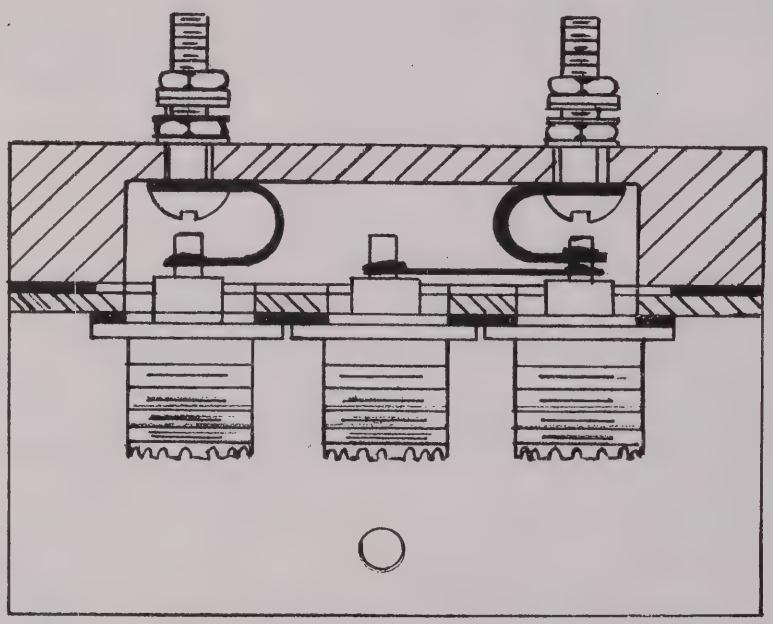
Dimensions Shown Are For 14,250 MCS.

Assembly Diagram - Rotary Beam
20-METER, 3-ELEMENT
MODEL 503

TELREX, INCORPORATED Asbury Park, N.J.

VI.

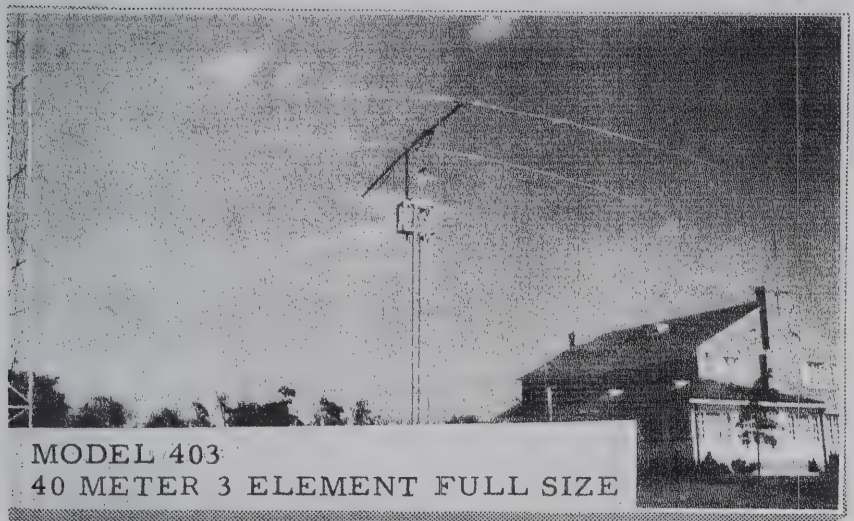
Cut away view showing construction and inner connections of our Junction Terminal Block.



To check for short or open, the "T" match bars and balun must be disconnected.

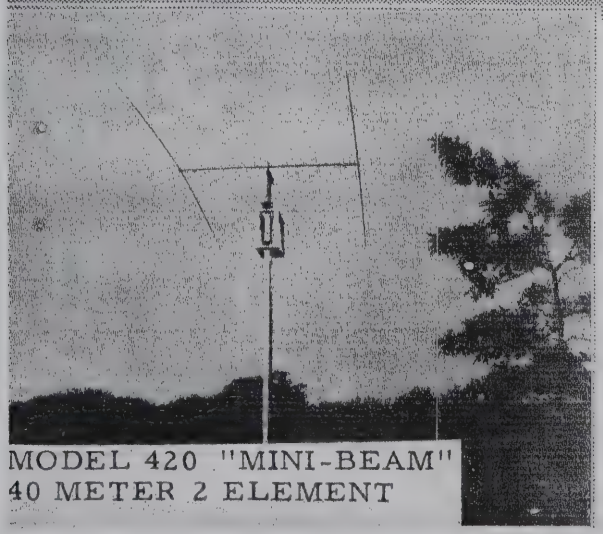
telrex PRECISION PRE-TUNED

40 METER ROTARIES



MODEL 403
40 METER 3 ELEMENT FULL SIZE

MODEL 402
40 METER 2 ELEMENT FULL SIZE



MODEL 420 "MINI-BEAM"
40 METER 2 ELEMENT

"BEAMED POWER - PERFECT MATCH"

"BALANCED PATTERN"
UNI-DIRECTIONAL ARRAY

- SINGLE HOLE MOUNTINGS
- LABORATORY TUNED NO CUT AND TRY
- ENGINEERED FOR LIFETIME SERVICE
- FAST, EASY, COMPLETELY FOOLPROOF ASSEMBLY
- DESIGNED TO WITHSTAND WIND UP TO 75 MPH VELOCITY

Here are tried and proven Telrex "Beamed Power" Rotaries for 40 - Meters. Durable, lightweight, minimum bulk design and construction ---field tested for over one year and approved for ease of installation and long service life.

Accurately pre-tuned and matched to provide dependable, premium 'top-man-on-the-frequency' performance.

MODEL 420

2-element, large aperature 40-Meter "MINI-BEAM" --- 3" x 13 ft. Dural Boom with 3-1/2" dia, boom reinforcing sections. Elements 41 ft. long overall. Gain 3.4 db; F/B ratio 14 db. Resonated with HI-Q inductors, link coupled to 52 ohm coaxial cable at SO-259 connector. Approximate weight 44 lbs.

AMATEUR NET $180.00
F.O.B. Asbury Park, N.J.

MODEL 402

2-element, full size 40-Meter Beam --- 3" x 13 ft. Dural Boom with 3-1/2" dia. reinforcing sections. Tapered elements half-wavelength long overall. Resonated with hairpins, fed and matched with coaxial half-wave balun terminated at terminal block with SO-259 connectors. Gain 5.6 db; F/B ratio 16 db; 52 ohm coaxial feed; approximate weight 60 lbs.

AMATEUR NET $275.00
F.O.B. Asbury Park, N.J.

MODEL 403

3-element, full size 40-Meter Beam --- 3" x 29 ft. Dural Boom with 3-1/2" dia. boom reinforcing sections. Tapered half-wavelength elements. Resonated with hairpins, fed and matched with coaxial half-wave balun terminated at terminal block with SO-259 connectors. Gain 8.3 db; F/B ratio 19 db; 52 ohm coaxial feed. Approximate weight 92 lbs. All the above rotaries are designed for single hole mounting to 2" dia, high strength steel mast.

AMATEUR NET $330.00
F.O.B. Asbury Park, N.J.

telrex INC. ASBURY PARK, N. J.

TELREX BEAMED-POWER ARRAYS — CONDENSED SPECIFICATION

PRETUNED MATCHED AND CALIBRATED FOR OPTIMUM PERFORMANCE

DESCRIPTION	3/4 MTR	1¼ MTR.		2 METER SERIES						6 MTR. SERIES				10 MTR. SERIES				11 MTR	15 MTR. SERIES				20 METER SERIES					40 MTR.		TRI BAND	DUO-BAND		
	OPTIMUM SPACED 15 ELEMENT	OPTIMUM SPACED 5 ELEMENT	OPTIMUM SPACED 15 ELEMENT	OPTIMUM SPACED ECONOMY MODEL 3 ELEMENT	OPTIMUM SPACED DELUXE ECONOMY MODEL - 5 ELEM.	OPTIMUM SPACED DELUXE ECONOMY MODEL - 6 ELEM.	OPTIMUM SPACED DELUXE ECONOMY MODEL - 8 ELEM	OPTIMUM SPACED DELUXE CIRCULAR POLARIZED-16 EL.	OPTIMUM SPACED DELUXE 15 ELEMENT	OPTIMUM SPACED DELUXE ECONOMY MODEL - 3 ELEM.	OPTIMUM SPACED DELUXE ECONOMY MODEL - 4 ELEM.	DELUXE ECONOMY MODEL 6 ELEMENT	OPTIMUM SPACED SUPER DELUXE 6 ELEMENT	EXPEDITION MODEL FULL SIZE 2 ELEMENT	MEDIUM SPACED DELUXE ECONOMY MODEL 3-ELEM	MEDIUM SPACED SUPER DELUXE 3-ELEMENT	OPTIMUM SPACED SUPER DELUXE MODEL 3-ELEM.	MEDIUM SPACED DELUXE ECONOMY MODEL 3-ELEM.	EXPEDITION MODEL FULL SIZE 2 ELEMENT	"MINI-BEAM" ECONOMY MODEL 3-ELEMENT	MEDIUM SPACED DELUXE MODEL 3-ELEMENT	OPTIMUM SPACED SUPER DELUXE MODEL 3-ELEM.	"MINI-BEAM" DELUXE MODEL 2 ELEMENT	EXPEDITION MODEL FULL SIZE 2 ELEMENT	MEDIUM SPACED DELUXE MODEL 3 ELEMENT	MEDIUM SPACED SUPER DELUXE 3 ELEMENT	OPTIMUM SPACED SUPER DELUXE 3 ELEMENT	"MINI-BEAM" DELUXE MODEL 2 ELEMENT	FULL SIZE SUPER DELUXE 3 ELEMENT	DELUXE "TRI-BAND" 10-15 -20 MTR. 7 ELEMENT	DUO-BAND DELUXE 10-15 2 ELEMENTS ON EACH	DUO-BAND DELUXE 15-20 2 ELEMENTS ON EACH	DUO-BAND DELUXE 10-20 2 ELEMENTS ON EACH
MODEL NUMBER	3/4 M-15C	1¼ M-5C	1¼ M-15C	2M-3C	2M-5C	2M-6C	2M-8C	2M-808	2M-15C	6M-3D	6M-4C	6M-6C	6M-624	10X-26	10M-309	10M-310	10M-314	11M-309	15X-28	1530-C	15M-312	15M-318	20M-DC	20X-212	20M-316	20M-318	20M-326	40M-214	40M-56-365	TB-7E	DB-2E-1015	DB-2E-1520	DB-2E-1020
GAIN IN DB OVER TUNED DIPOLE	17.2	12.5	17.2	10.0	11.6	13.2	15.5	11.5	17.2	10.0	12.0	15.0	15.0	5.5	8.4	8.9	10.0	8.4	5.5	7.0	8.9	10.0	3.5	5.5	8.4	9.0	10.0	3.6	8.3	*	5.5	5.5	5.5
F_B - RATIO IN DB	26	25	26	18	23	22	26	26	26	26	28	22	23	14	28	30	21	26	14	28	28	21	18	14	26	30	21	16	25	•	18	18	18
HORIZONTAL BEAMWIDTH	27°	48°	27°	55°	51°	46°	35°	35°	27°	55°	58°	45°	44°	65°	62°	61°	56°	62°	65°	63°	59°	56°	74°	65°	56°	55°	56°	74°	58°	64°	64°	64°	64°
VERTICAL BEAMWIDTH	28°	53°	28°	80°	52°	51°	38°	38°	28°	80°	62°	49°	49°	95°	97°	82°	76°	98°	95°	97°	81°	76°	130°	101°	85°	82°	79°	136°	90°	110°	110°	110°	110°
WIND SURFACE AREA IN SQ. FT.	.90	.50	1.72	.29	.45	.73	1.23	1.65	2.23	.95	1.20	2.60	3.80	2.09	2.03	2.55	2.90	2.03	2.62	1.50	5.92	3.98	2.3	5.98	6.02	8.53	6.27	7.15	12.6	9.27	5.5	7.2	6.2
WIND LOAD AT 100 M.P.H. (IN LBS.)	26	15	50	9	13	21	36	41	66	28	35	77	116	61	59	75	86	59	78	48	171	121	71	189	188	266	196	224	406	293	175	230	196
BOOM LENGTH	10'-6"	42"	19'-6"	34"	5'	8'-6"	13'-9"	14'-6"	27-9 WITH BOOM STRUTS	7'-7"	12'	23'-4 WITH BOOM STRUTS	23'-4 WITH BOOM STRUTS	6'	9'	10'	14'	9'	8'	12'	12'	18'	10'	12'	16'	18'	26' WITH BOOM STRUTS	14'	29'-4" WITH BOOM STRUTS	14'	12'	12'	14'
BOOM DIAMETER (OUTSIDE)	1½"	⅞"	1½"	⅞"	⅞"	1"	1¼"	1½"	1½"	1½"	1½"	1½"	2"	2"	1½"	2"	2"	1¼"	2"	1½"	2"	2"	2"	3"	2"	3"	3"	3"	3"	2"	2"	2"	2"
LONGEST ELEMENT LENGTH (APPROX.)	15"	28"	28"	3'-6"	3'-6"	3'-6"	3'-6"	3'-6"	3'-6"	8'-8"	8'-8"	8'-8"	8'-10"	15'	18'-3"	17'	18'-4"	19'	10'-5"	13'-7"	24'-6"	25'	19'	34'	36'	36'	32'-8"	46'	64'	32'-10"	25'-8"	32'-10"	32'-10
TURNING RADIUS (APPROX.)	5'-8"	26"	11'-6"	3'	3'-6"	5'-6"	7'-6"	8'-4"	14'	6'	8'	13'	14'	10'	11'	10'	12'	11'	12'	8'-6"	13'-8"	15'	12'	18'	20'	20'	21'	24'	38'	18'	15'	17'	15'
SUPPORT MAST DIAMETER REQD.	1" OR 1½"	1" OR 1½"	1" OR 1½"	1" OR 1½"	1" OR 1½"	1" OR 1½"	1" OR 1½"	1" OR 1½"	1" OR 1½"	1½"	1½" OR 2"	1½" OR 2"	2"	1½" OR 2"	1½" OR 2"	2"	2"	1½" OR 2"	1½" OR 2"	1½" OR 2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"
ANTENNA NET WT. IN POUNDS (APPROX.)	11	2½	14	1½	2½	2¾	6	11	15	5	8	16	36	13	10	21	25	12	15	10–	32	35	12	41	18	50	54	44	90	53	23	31	32
SHIPPING WEIGHT IN POUNDS (APPROX.)	13	3	16 5	2¼	3	4	10	15	20	7	10	20	44	17	14	27	30	15	22	12–	45	48	16	62	40	58	67	66	130	63	26	36	38
SHIPPING CONTAINER SIZE (APPROX.)	3'x8" x 8'	4'x8" x 3'-5"	3'x8" x 11'	3'x8" x 3'	3'x4" x 5'-5"	4'x7" x 7'	4'x7" x 7'	4'x7" x 7'	4'x7" x 15'	4'x4" x 8'	4'x4" x 12'	6'x6" x 12'	6'x6" x 12'	4'x11" x 6'	4'x3" x 9'	4'x4" x 10'	3'x7" x 14'	4'x4" x 12'	4'x6" x 8'	4'x8" x 7'	4'x4" x 12'	4'x4" x 12'	7'x8" x 16'-2"	7'x19" x 12'	6'x8" x 12'	6'x12" x 12'	8'x12" x 14'	6'x10" x 15'	6'x15" x 18'	4'x12" x 18'-6"	6'x6" x 12'	6'x12"	6'x6" x 10'
PRICE F.O.B. ASBURY PARK N.J.	$29.00	$6.95	$31.00	$5.95	$7.75	$12.50	$13.75	$33.50	$39.25	$16.25	$19.75	$57.50	$149.00	$54.00	$39.50	$62.50	$96.00	$41.50	$59.00	$46.00	$105.00	$130.00	$57.00	$105.00	$130.00	$175.00	$198.00	$180.00	$365.00	$158.00	$106.00	$132.00	$120.00

THE MFG. RESERVES THE RIGHT TO MAKE CHANGES IN ALL SPECIFICATIONS AND PRICES SHOWN ABOVE. ALL PRICES ARE F.O.B. ASBURY PARK N.J. (SPECIAL WOODEN SHIPPING BOXES FOR OVERSEAS SHIPMENT WILL BE APPROX. $10.00 TO $18.00 ADDITIONAL TO ABOVE PRICES.)

* 3 Elements 7 DB on 10 Meters, 2 Elements 5.5 DB on 15 Meters, 2 Elements 5.5 DB on 20 Meters Fed With 52 OHM Coax

• F/B ratio 19 db on 15 and 20; 22 db on 10

TELREX ARRAYS ARE CALIBRATED FOR ASSEMBLY TO OUR EXACT SPECIFICATIONS, AND TELREX ARRAYS WILL EXHIBIT CLOSE-TO-UNITY S.W.R. WHEN MOUNTED IN THE CLEAR AND AT OUR RECOMMENDED HEIGHT OR HIGHER. IMPEDANCE-TRANSFORMING BEAMWIDTH AND FREQUENCY VARIES SLIGHTLY WITH EACH MODEL. SEE SEPERATE TECHNICAL SHEET FOR EACH ANTENNA FOR EXACT DATA.

EVERY TELREX ARRAY IS PRECISION TUNED, MATCHED AND CALIBRATED (CHART SUPPLIED WITH EACH ANTENNA) SO CUSTOMER CAN ASSEMBLE HIS ARRAY FOR OPTIMUM

DIAMOND "E" COLD DRAWN SEAMLESS 1025 TENSILE MECHANICAL STEEL TUBING

1-1/2" O.D. x .125 x 16 ft	$26.00
1-1/2" O.D. x .156 x 16 ft	28.00
1-1/2" O.D. x .250 x 14 ft	22.00
2" O.D. x .134 x 8 ft	17.00
2" O.D. x .134 x 16 ft	30.00
2" O.D. x .250 x 12 ft	$34.00
2" O.D. x .250 x 16 ft	45.00
2" O.D. x .250 x 20 ft	56.00

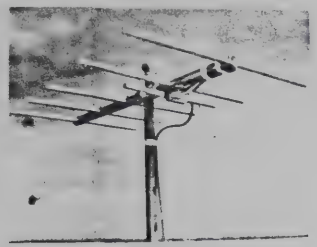
TELREX BEAM ROTATOR AND DIRECTION-CONTROL INDICATOR SYSTEM

Model 200RS HEAVY-DUTY $360.00

Rotators and Indicators for other commercial applications designed and built to order. Prices on request.

PLEASE TURN PAGE for OTHER AVAILABLE ARRAY

2 METER "BEAMED POWER-PERFECT MATCH" "BALANCED PATTERN"



NO. 250 ILLUSTRATED
HORIZONTALLY MOUNTED

5 ELEMENT UNI-DIRECTIONAL ARRAY.
11.2 db gain, 53° beamwidth, 20 db F/B ratio. Can be vertically or horizontally stacked. Complete with 2" boom, 7/8" elements, 1/2 wave "Balun" and junction terminal block.
MODEL 250 **AMATEUR NET $45.00**
Net Wt. 8 lbs.

"TWIN-FIVE" – 10 ELEMENT. (Half-Wave Stacked 5 Element Arrays),
15.6 db gain, 50° beamwidth. Can be vertically or horizontally stacked. Complete with 2" boom, 7/8" elements, spacing boom, coaxial 1/2 wave "Balun" and junction terminal block.
MODEL 255 **AMATEUR NET $90.00**
Net Wt. 18 lbs.

"TWIN-FIVE" STANDARD - 10 ELEMENT (Half Wave Stacked 5 Element Arrays)
"BEAMED POWER-PERFECT MATCH" "BALANCED PATTERN", Supplied for vertical or horizontal stacking. Complete with 1/2 wave "Balun"
MODEL 2M-5-S **AMATEUR NET $27.50**
Net Wt. 12 lbs.

The above beams can be easily rotated with a Tenna-Rotor. The standard mounting hole supplied is a 1-3/8" I.D. hole for 1-3/8" masting. (Can also be supplied with mounting hole to take 2" dia. mast.)

NO. 2M-5-S STACKED ARRAY ILLUSTRATED
VERTICALLY MOUNTED

NO. 255 STACKED ARRAY ILLUSTRATED
HORIZONTALLY MOUNTED

NO. 255 STACKED ARRAY
VERTICALLY MOUNTED

10 METER . . . "TWIN-THREE" "BEAMED POWER - PERFECT MATCH" - "BALANCED PATTERN", 6 element - Two 3 ELEMENT ARRAYS. 1/2 WAVE HORIZONTALLY STACKED. Complete with special support masting, 1/2 wave coaxial "Balun", phasing lines and terminal block. Compact H & E plane pattern, gain better than 13 db, F/B ratio approximately 26 db. (No other array can be mounted above or below.)
MODEL 10M-3-S **AMATEUR NET $183.00**

"TWIN-FIVE" - TEN METER "MONARCH" - "BEAMED POWER - PERFECT MATCH" - "BALANCED - PATTERN" ROTARY . . . 10 ELEMENTS - TWO 5 ELEMENT ARRAYS STACKED 1/2 WAVE APART. Complete with special support masting - 1/2 wave coaxial "Balun", phasing lines and terminal block. Compact H & E plane pattern, gain better than 15.6 db, F/B ratio approximately 30 db. (No other array can be mounted above or below.) 52 ohm feed.
MODEL 10M-5-S **AMATEUR NET $271.00**

"TWIN-THREE" - 20 METER "MONARCH", SPECIAL ORDER ONLY. "BEAMED POWER - PERFECT MATCH" "BALANCED PATTERN" - 6 element - Two 3 element arrays stacked 1/2 wave apart. The ultimate in 20 meter performance. Precision tuned and matched complete with special support masting, 1/2 wave coaxial "Balun", phasing lines, and terminal block. Compact H & E plane pattern, gain better than 13 db, F/B ratio approximately 26 db. This unit requires a special tower, ball bearing, thrust bearings and special rotator. (No other array can be mounted above or below.) 52 ohm feed.
MODEL 20M-3-S **AMATEUR NET $555.00**
Complete, less bearings, tower or rotator, or coaxial cable.

MULTI-BAND ARRAYS — ON ONE MAST

3 El. 10, over 3 El. 15, over 3 El. 20 with precision drilled 18'x2"O.D. Diamond E masting
Amateur Net $330.00

3 El. 10, over 3 El. 15, over 5 El. 20 with precision drilled 18'x2"O.D. Diamond E masting
Amateur Net $450.00

3 El. 10, over 5 El. 15, over 5 El. 20 with precision drilled 18'x2"O.D. Diamond E masting
Amateur Net $550.00

6 El. 10, over 5 El. 15, over 5 El. 20 with precision drilled 21'x2"O.D. Diamond E masting
Amateur Net $615.00

Other combinations available complete with proper masting, precision spaced and tuned to eliminate beam interaction. Specify center frequency preferred on various bands. Longer masting available at extra cost.)

MASTING Diamond E, Seamless Cold Drawn Carbon Steel, Mechanical Tubing Precision drilled, and painted with two coats of "Duco".

12-ft. x 2in. O.D., 10guage	$23.50
16-ft. x 2in. O.D., 10guage	31.00
20-ft. x 2in. O.D., 10guage	35.00

Above masting also available undrilled, unpainted. **Prices on request**

Heavy Duty Dural 61ST6, .125" wall (for one or two arrays)

12-ft. x 2in. O.D. 14.00

A-458
54817

BOOKLET H-130

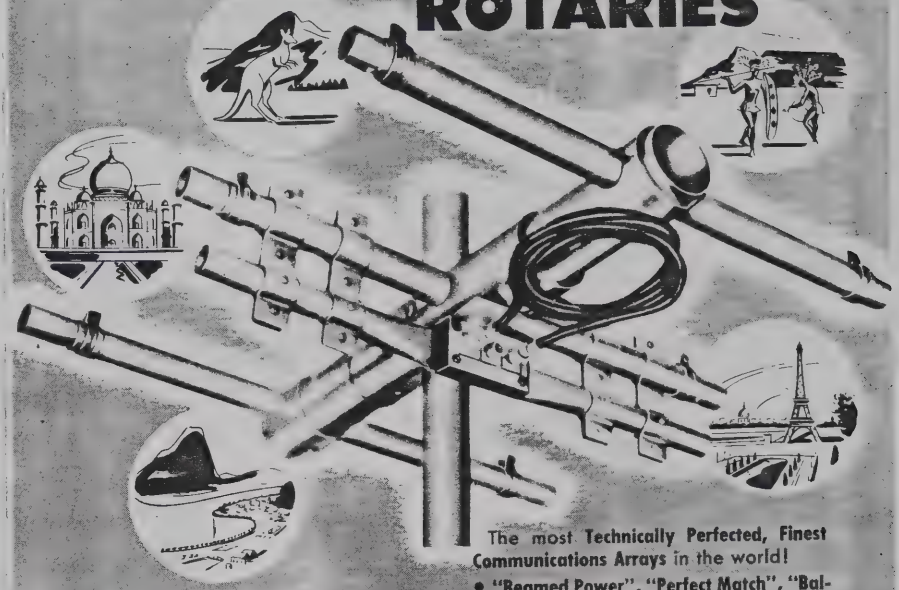
YOU'RE THERE!

—with

TELREX

PRE-TUNED

"BEAMED POWER" ROTARIES



Are you weary of endless antenna pruning and adjustment and a variety of doubtful results? End your antenna problems once and for all by installing a Telrex "Beamed Power — Perfect Match" Rotary.

Telrex "Communications Quality" rotaries are built to the highest standards, precision pre-tuned and matched for balanced pattern and optimum performance at your site, whether in Brooklyn or Timbuctoo. Order your Telrex Beamed Power Rotary now!

The most **Technically Perfected, Finest Communications Arrays** in the world!

- **"Beamed Power", "Perfect Match", "Balanced Pattern"** Rotaries for 2, 6, 10, 15, 20, 40 meters or combinations
- All Telrex "Beamed Power" Pre-Tuned arrays are completely integrated, **electrically and mechanically!**

Special Rotaries designed and built for commercial installations.

Be sure it's a "CONICAL V-BEAM" —Look for the TELREX Trademark

telrex INC.

CONICAL-V-BEAMS

AMERICA'S STANDARD OF COMPARISON

ASBURY PARK, N. J.

THE SKILL TO DESIGN
THE FACILITIES TO PRODUCE
THE ABILITY TO DELIVER

TELREX DE LUXE and "MONARCH" SERIES

MODEL NO.	DESCRIPTION	PRICE	BOOM DIMENSIONS	DB GAIN	F/B-RATIO IN DB
2-Meters					
2M-1836	18 el. Optimum-Spaced, Full Size	$145.00	36' x 2" OD *	19.2	27
6-Meters					
6M-1336	13-el. "Monarch" Series	310.00	36' x 3" OD *	17.8	30
10-Meters					
10M-512	5-el. Close Spaced	125.00	12' x 2" OD	11.2	30
10M-636	6-el. Optimum-Spaced, Super De Luxe	280.00	36' x 3" OD *	13.8	26
10M-1044	10-el. "Monarch" Series	590.00	44' x 3" OD *	17.2	40
15-Meters					
15M-426	4-el. Optimum-Spaced	195.00	26' x 3" OD *	11.2	25
15M-537	5-el. Optimum-Spaced	250.00	37' x 3" OD *	12.3	32
15M-845	8-el. "Monarch" Series	590.00	45' x 3" OD *	16.3	40
20-Meters					
20M-532	5-el. Medium-Spaced, Super De Luxe	315.00	32' x 3" OD *	12.0	30
20M-436	4-el. Optimum-Spaced, Super DeLuxe	305.00	36' x 3" OD *	11.8	26
20M-646	6-el. "Monarch" Series	590.00	47' x 3" OD *	15.2	45
NEW "MONARCH" - "TRI-BAND"					
Model No. "Monarch" MTB-7E					
	7-el. "Monarch" Series	275.00	14' x 3" O.D.	10M- 8.0 15M- 5.5 20M- 5.5	10M- 22 15M- 18 20M- 18

* with boom struts

TELREX "BALANCED-BEAMED-POWER" UNITY GAIN ROTABLE DIPOLE

Laboratory tuned and matched, hairpin resonated and coaxial half-wave "Balun" fed for clean cut balanced, Bi-directional pattern. Designed for service in all communication application requiring a Bi-directional-radiation pattern.

	Net Price
10 - Meter Dipole	$ 23.00
15 - Meter Dipole	26.00
20 - Meter Dipole	34.00
40 - Meter Dipole	75.00

MOUNTING ACCESSORIES

P -100	Flange (pipe)	$ 2.50
P -101	Radial Thrust Bearing (2" Mast)	15.00
P -104	Radial Thrust Bearing (1-1/2" Mast)	11.75
SP-213	Steel Plate (not bored)	5.00
SP-214	Steel Plate (bored to fit prop pitch motor)	9.00
SP-215	Angle Iron Frames (2 pieces)	11.50
SP-216	Steel Plate (drilled for thrust bearing)	3.50
SP-217	Steel Plate (drilled for micarta bearing)	3.50
SP-218	Micarta Bearing	4.00
SP-223	Mast Clamp	5.60
SP-224	Steel Plate (drilled for 200RS)	3.50
SP-228	Mast Clamp for 200RS	7.50
SP-231	Steel Plate for top of pole and drilled for bearing	7.50
SP-243	Cycolac Insulator (2" boom)	8.50
SP-244	Cycolac insulator (3" boom)	13.50
	Gusset Plate (2" boom)	6.00
	Gusset Plate (3" boom)	7.50
	Silicone Compound (8 oz. tube)	6.50
	Silicone Compound (2 oz. tube)	2.10
	Anti-Seize Compound (1/2 oz. tube)	.75

Coaxial Phasing Harness

Model	Price
2M-5C	$ 10.25
2M-6C	10.25
2M-8C	12.00
2M-15C	16.00
6M-3D	12.00
6M-4C	12.00
6M-6C	17.00

Phasing Bars

2M-3C	.85

Open Phasing Line

1-1/4M-5C	4.25

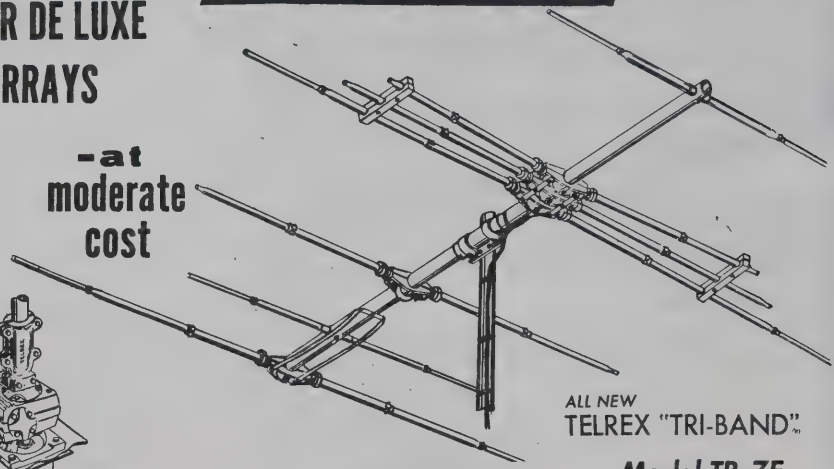
Precision Tuned and Matched for TOP Performance

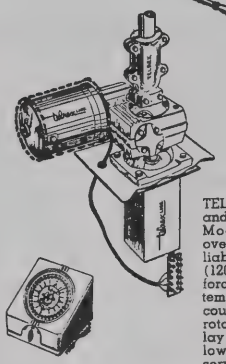
FAMOUS telrex

CATALOG H-59

DE LUXE and SUPER DE LUXE ARRAYS

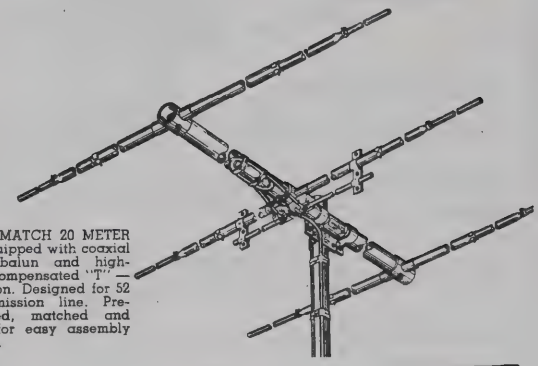
-at moderate cost





TELREX Heavy-Duty Rotator and Direction-Control System Model 200RS. Specifically overdesigned for utmost reliability and high torque (1200 inch-lbs.) in hurricane force winds. Indication system selsyn controlled, directly coupled to output shaft of rotator. Highly responsive relay switching system assures low cost, highly efficient service

ALL NEW TELREX "TRI-BAND" Model TB-7E



NEW "T"—MATCH 20 METER ARRAY—Equipped with coaxial half-wave balun and high-efficiency, compensated "T" — match section. Designed for 52 ohm transmission line. Precision tuned, matched and calibrated for easy assembly at your site.

HIGHEST SIGNAL TO NOISE, SIGNAL TO INTERFERENCE RATIO EVER!

- Gusset plate mounting
- Hair-pin resonated
- Wind drag reduced 55%
- Rugged, lightweight aluminum construction
- All stainless steel hardware

ASK THE AMATEUR WHO OWNS ONE!

Whether you are limited for space or money, or whether money is no problem, Telrex has the best suitable array for you. Every Telrex array is fully integrated mechanically and electrically to provide outstanding performance per element. The unsurpassed superiority of Telrex arrays is why the most outstanding radio amateurs, including the world's champion DX'er, use Telrex.

NOW! Telrex features the best arrays ever produced, and new lower cost models designed to do the job.

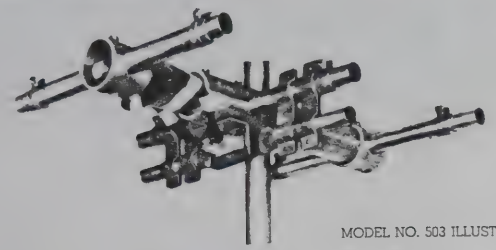
All Telrex arrays are precision tuned and matched for optimum results per element at your site without experimentation or cut and try.

Super De-Luxe models employ all stainless steel hardware, lower cost models employ heavy cadmium plated hardware. A heavy-duty gusset plate mast fastener supplied with every array.

A model to fit every purse or requirement from ¾ thru 40 meters.

Write our engineering department for assistance in laying out an antenna system whether you intend to be represented on the frequency or whether you intend to dominate the frequency!

20 METER "BEAMED POWER-PERFECT MATCH" "BALANCED PATTERN"



MODEL NO. 503 ILLUSTRATED

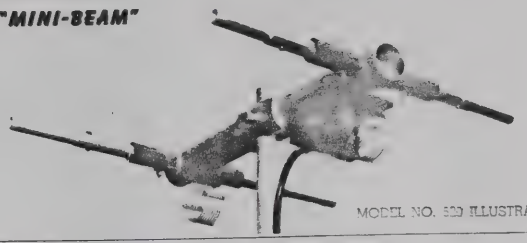
20-METER . . . 2 ELEMENT UNI-DIRECTIONAL ARRAY.
.1 wavelength spaced director, tuned and calibrated for balanced pattern, 5.6 db gain, 65° beamwidth, 20 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 6' 4" x 3" boom; 1-1/2" dia. center elements, 1-3/8" dia. telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors.
AMATEUR NET $97.00
MODEL 502
Net Wt. 45 lbs approx

20-METER . . . 3 ELEMENT UNI-DIRECTIONAL ARRAY.
.12 wavelength spaced reflector and director, tuned and calibrated for balanced pattern, 8.9 db gain, 60° beamwidth, 26 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 16' 3" x 3" boom; 1-1/2" dia. center elements, 1-3/8" dia. telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors.
AMATEUR NET $120.00
MODEL 503
Net Wt. 47 lbs. approx.

20-METER . . . 4 ELEMENT UNI-DIRECTIONAL ARRAY.
.12 wavelength spaced reflector and 2 directors, tuned and calibrated for optimum gain, balanced pattern, 9.7 db gain, 56° beamwidth, 28 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 24' x 3" boom; 1-1/2" dia. center elements, 1-3/8" dia. telescoping sections. Complete with steel boom-brace struts, special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors.
AMATEUR NET $185.00
MODEL 504
Net Wt. 71 lbs.

20-METER . . . 5 ELEMENT UNI-DIRECTIONAL ARRAY.
.12 wavelength spaced reflector, and 3 directors, tuned and calibrated for balanced pattern, 11.2 db gain, 53° beamwidth, 30 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 32' 4" x 3" boom; 1-1/2" dia. center elements, 1-3/8" dia. telescoping sections. Complete with steel boom-brace struts, special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors. Will out-perform a good Rhombic.
AMATEUR NET $240.00
MODEL 505
Net Wt. 95 lbs.

"MINI-BEAM"

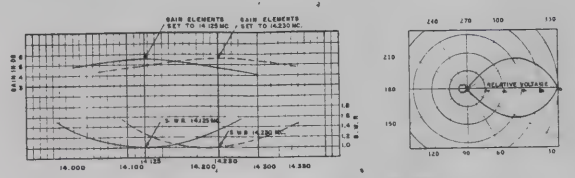


MODEL NO. 520 ILLUSTRATED

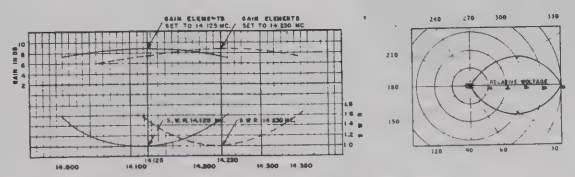
20-METER . . . "MINI-BEAM" (COMPACT 2 ELEMENT ROTARY)
A precision, pre-tuned 20 meter array with a rotating radius of less than 11 feet! Constructed to the TELREX high standards for mechanical strength, yet . . . the "MINI-BEAM" weighs only 11 pounds! So light that a good TV rotator will handle it with adequate safety!
PERFORMANCE – Just check these specs against ANY beam!
[illegible] ratio, 4.6 db gain over a full wave dipole, 1:1 S.W.R at 14.250 kc; better than 1.3:1 at phone band edges! 7 foot x 2" O.D. boom, with 1-1/2 reinforcing center sleeve. Telescoping elements 7' 9" each side of center loading coupling coil. Built-in SO-239 receptacle for 52 ohm coax. Can be used with 75 ohm line also. Pre-tuned and matched - no cut and try! No formulas!
AMATEUR NET $55.50
MODEL 520
Net Wt. 11 lbs.

Produced and printed in the United States by TELREX INC.

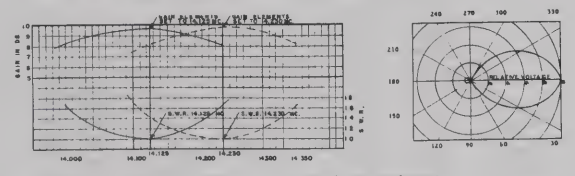
The photo illustrates a 3 element 10 meter over 3 element 15 meter over 5 element 20 meter installation of Telrex "Beamed Power" Rotaries at W2BDS.



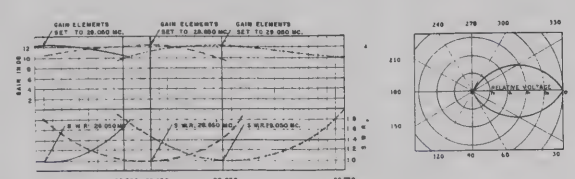
TYPICAL GAIN and S/W/R CURVES, and DIRECTIVITY PATTERN for 2 ELEMENT "BEAMED POWER" ROTARIES.



TYPICAL GAIN and S/W/R CURVES, and DIRECTIVITY PATTERN for 3 ELEMENT "BEAMED POWER" ROTARIES.

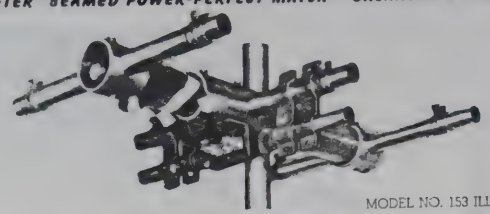


TYPICAL GAIN and S/W/R CURVES, and DIRECTIVITY PATTERN for 4 ELEMENT "BEAMED POWER" ROTARIES



TYPICAL GAIN and S/W/R CURVES, and DIRECTIVITY PATTERN for 5 ELEMENT "BEAMED POWER" ROTARIES.

15 METER "BEAMED POWER-PERFECT MATCH" "BALANCED PATTERN"

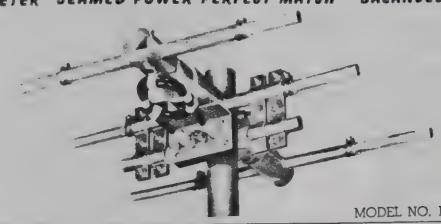


MODEL NO. 153 ILLUSTRATED

15-METER . . . 3 ELEMENT UNI-DIRECTIONAL ARRAY.
.135 wavelength spaced reflector and director, tuned and calibrated for balanced pattern, 8.9 db gain, 60° beamwidth, 26 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 12' 5" x 3" boom; 1-1/2" dia. center elements, 1-3/8" dia. telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors.
AMATEUR NET $110.00
MODEL 153
Net Wt. 49 lbs.

15-METER . . . 5 ELEMENT UNI-DIRECTIONAL ARRAY.
.135 wavelength spaced reflector, and 3 directors, tuned and calibrated for balanced pattern, 11.2 db gain, 53° beamwidth, 28 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 24' 6" x 3" boom; 1-1/2" dia. center elements, 1-3/8" dia. telescoping sections. Complete with steel boom brace struts, special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors. Will out-perform a good Rhombic.
AMATEUR NET $210.00
MODEL 155
Net Wt. 74 lbs.

10 METER "BEAMED POWER-PERFECT MATCH" "BALANCED PATTERN"



MODEL NO. 10M-3 ILLUSTRATED

10-METER . . . 3 ELEMENT UNI-DIRECTIONAL ARRAY.
.12 wavelength spaced reflector and director, tuned and calibrated for balanced pattern, 8.9 db gain, 60° beamwidth, 26 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61S-T6 – 8' 5" x 2" boom; 7/8" dia. center elements, 3/4" dia. telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors. Easily rotated by Tenna-Rotor.
AMATEUR NET $67.50
MODEL 10M-3
Net Wt. 20 lbs.

10 METER . . . 5 ELEMENT UNI-DIRECTIONAL ARRAY
.12 wavelength spaced reflector, and 4 directors, tuned and calibrated for balanced pattern, 11.2 db gain, 53° beamwidth, 28 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line
CONSTRUCTION
All 61ST6 - 12'6"x2" boom; 7/8" dia. center elements, 3/4" telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors.
AMATEUR NET $108.00
MODEL 10M-5
Net Wt. 27 lbs.

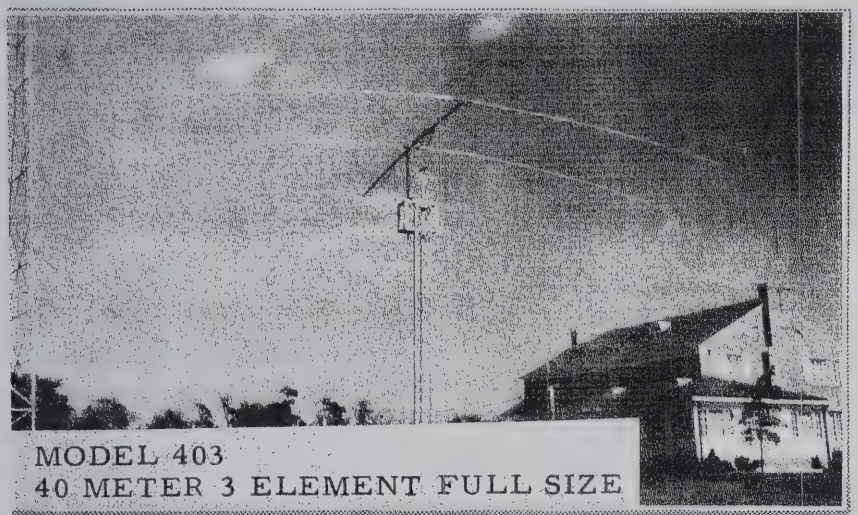
10-METER . . . 6 ELEMENT UNI-DIRECTIONAL ARRAY.
.12 wavelength spaced reflector, and 4 directors, tuned and calibrated for balanced pattern, 12.1 db gain, 50° beamwidth, 29 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 20' 4" x 3" boom; 7/8" dia. center elements, 3/4" telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors. Will out-perform a good Rhombic.
AMATEUR NET $130.00
MODEL 10M-6
Net Wt. 40 lbs.

6-METER . . . 5 ELEMENT UNI-DIRECTIONAL ARRAY.
.12 wavelength spaced reflector, and 3 directors, tuned and calibrated for balanced pattern, 11.2 db gain, 53° beamwidth, 28 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line. (Can be half-wave stacked for additional gain.)
CONSTRUCTION
All 61ST6 – 11' 6" x 2" boom; 7/8" dia. center elements, 3/4" dia. telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors. Easily rotated by Tenna-Rotor.
AMATEUR NET $85.00
MODEL 6M-5
Net Wt. 16 lbs.

6 METER . . . "TWIN-FIVE" - 10 ELEMENT "MONARCH SERIES" (Half Wave Stacked 5 Element Arrays) **"BEAMED POWER" - PERFECT MATCH" "BALANCED PATTERN"**, complete with 16 foot length 2" O.D. mast and 1/2 wave "Balun."
AMATEUR NET $214.00
MODEL 6M-5-S

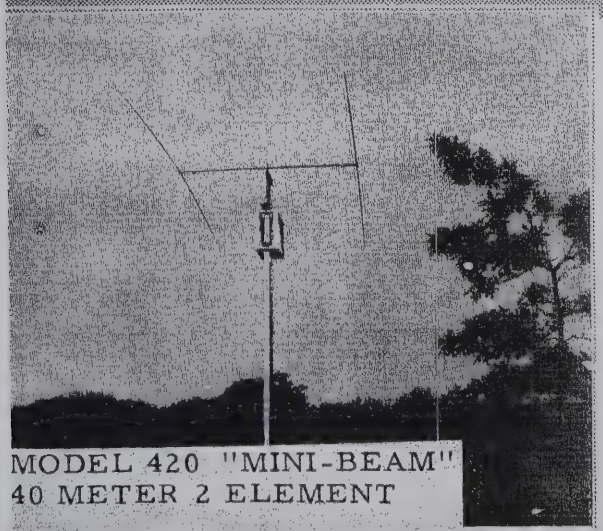
telrex PRECISION PRE-TUNED

40 METER ROTARIES



MODEL 403
40 METER 3 ELEMENT FULL SIZE

MODEL 402
40 METER 2 ELEMENT FULL SIZE



MODEL 420 "MINI-BEAM"
40 METER 2 ELEMENT

"BEAMED POWER - PERFECT MATCH"

"BALANCED PATTERN"

UNI-DIRECTIONAL ARRAY

- SINGLE HOLE MOUNTINGS
- LABORATORY TUNED NO CUT AND TRY
- ENGINEERED FOR LIFETIME SERVICE
- FAST, EASY, COMPLETELY FOOLPROOF ASSEMBLY
- DESIGNED TO WITHSTAND WIND UP TO 75 MPH VELOCITY

Here are tried and proven Telrex "Beamed Power" Rotaries for 40 - Meters. Durable, lightweight, minimum bulk design and construction ---field tested for over one year and approved for ease of installation and long service life.

Accurately pre-tuned and matched to provide dependable, premium 'top-man-on-the-frequency' performance.

MODEL 420

2-element, large aperature 40-Meter "MINI-BEAM" --- 3" x 13 ft. Dural Boom with 3-1/2" dia, boom reinforcing sections. Elements 41 ft. long overall. Gain 3.4 db; F/B ratio 14 db. Resonated with HI-Q inductors, link coupled to 52 ohm coaxial cable at SO-259 connector. Approximate weight 44 lbs.

AMATEUR NET $180.00
F.O.B. Asbury Park, N.J.

MODEL 402

2-element, full size 40-Meter Beam --- 3" x 13 ft. Dural Boom with 3-1/2" dia. reinforcing sections. Tapered elements half-wavelength long overall. Resonated with hairpins, fed and matched with coaxial half-wave balun terminated at terminal block with SO-259 connectors. Gain 5.6 db; F/B ratio 16 db; 52 ohm coaxial feed; approximate weight 60 lbs.

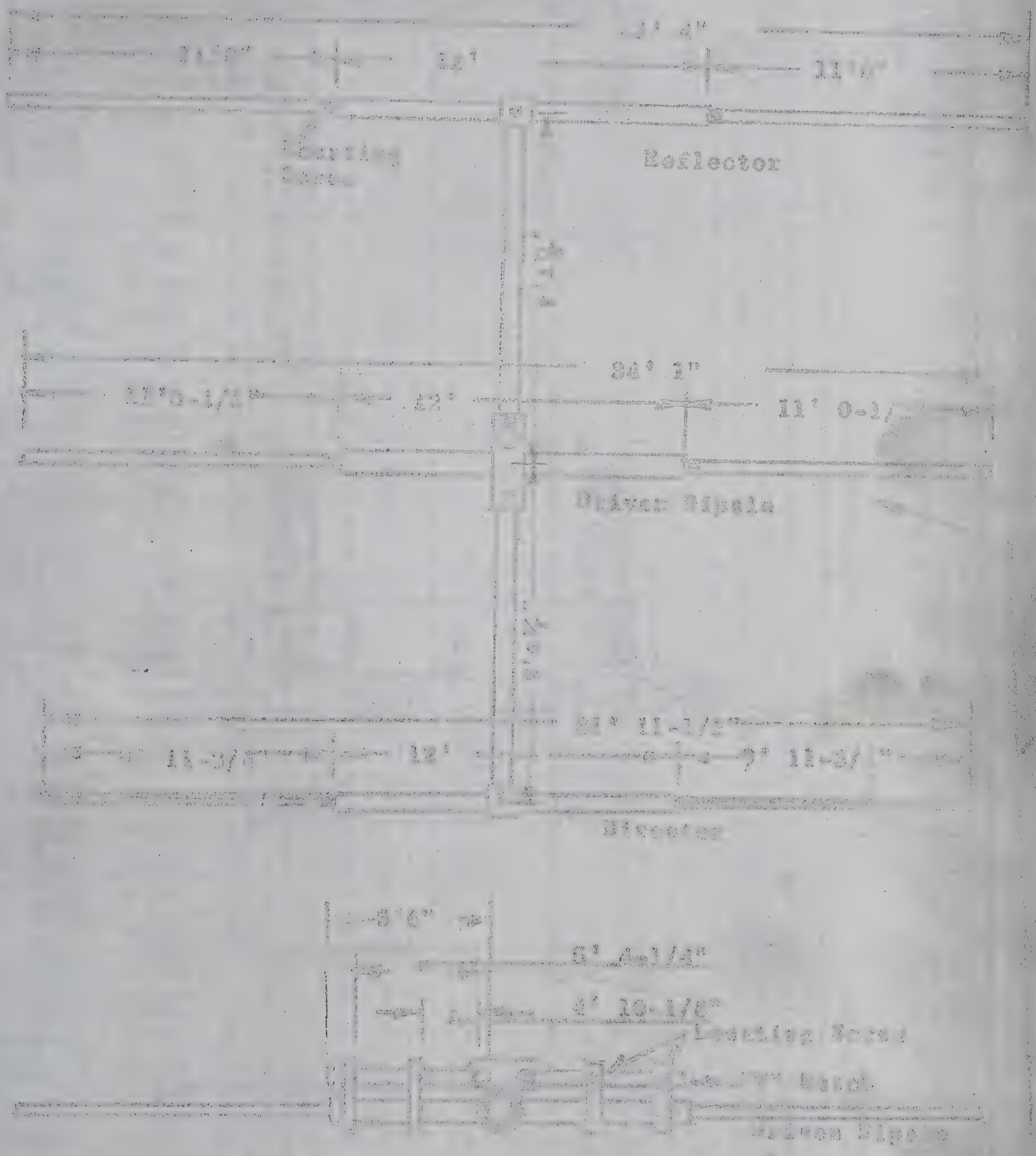
AMATEUR NET $275.00
F.O.B. Asbury Park, N.J.

MODEL 403

3-element, full size 40-Meter Beam --- 3" x 29 ft. Dural Boom with 3-1/2" dia. boom reinforcing sections. Tapered half-wavelength elements. Resonated with hairpins, fed and matched with coaxial half-wave balun terminated at terminal block with SO-259 connectors. Gain 8.3 db; F/B ratio 19 db; 52 ohm coaxial feed. Approximate weight 92 lbs. All the above rotaries are designed for single hole mounting to 2" dia, high strength steel mast.

AMATEUR NET $330.00
F.O.B. Asbury Park, N.J.

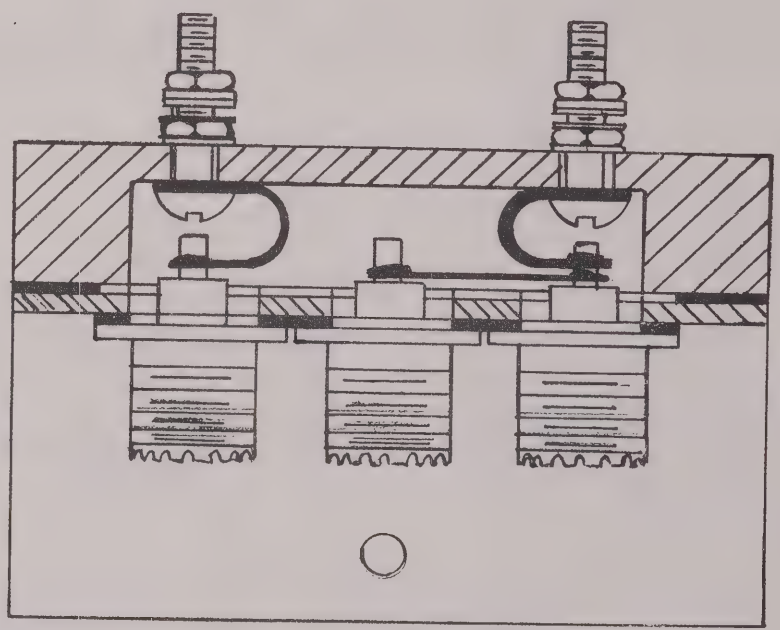
telrex INC. ASBURY PARK, N. J.


Reflector
Driven Dipole
Director

Lucite Rods
Driven Dipole

VI.

Cut away view showing construction and inner connections of our Junction Terminal Block.



To check for short or open, the "T" match bars and balun must be disconnected.

TELREX BEAMED-POWER ARRAYS — CONDENSED SPECIFICATION

PRETUNED MATCHED AND CALIBRATED FOR OPTIMUM PERFORMANCE

DESCRIPTION	3/4 MTR	1¼ MTR.	2 METER SERIES						6 MTR. SERIES				10 MTR. SERIES				11 MTR	15 MTR. SERIES				20 METER SERIES					40 MTR.		TRI BAND	DUO-BAND		
	OPTIMUM SPACED 15 ELEMENT	OPTIMUM SPACED 5 ELEMENT	OPTIMUM SPACED 15 ELEMENT	OPTIMUM SPACED ECONOMY MODEL 3 ELEMENT	OPTIMUM SPACED DELUXE ECONOMY MODEL- 5 ELEM.	OPTIMUM SPACED DELUXE ECONOMY MODEL- 6 ELEM.	OPTIMUM SPACED DELUXE ECONOMY MODEL- 8 ELEM.	OPTIMUM SPACED DELUXE CIRCULAR POLARIZED-16 EL.	OPTIMUM SPACED DELUXE 15 ELEMENT	OPTIMUM SPACED DELUXE ECONOMY MODEL - 3 ELEM.	OPTIMUM SPACED DELUXE ECONOMY MODEL - 4 ELEM.	DELUXE ECONOMY MODEL 6 ELEMENT	OPTIMUM SPACED SUPER DELUXE 6 ELEMENT	EXPEDITION MODEL FULL SIZE 2 ELEMENT	MEDIUM SPACED DELUXE ECONOMY MODEL 3-ELEM	MEDIUM SPACED SUPER DELUXE 3-ELEMENT	OPTIMUM SPACED SUPER DELUXE MODEL 3- ELEM.	MEDIUM SPACED DELUXE ECONOMY MODEL 3- ELEM.	EXPEDITION MODEL FULL SIZE 2 ELEMENT	"MINI-BEAM" ECONOMY MODEL 3- ELEMENT	MEDIUM SPACED DELUXE MODEL 3-ELEMENT	OPTIMUM SPACED SUPER DELUXE MODEL 3- ELEM.	"MINI-BEAM" DELUXE MODEL 2 ELEMENT	EXPEDITION MODEL FULL SIZE 2 ELEMENT	MEDIUM SPACED DELUXE MODEL 3 ELEMENT	MEDIUM SPACED SUPER DELUXE 3 ELEMENT	OPTIMUM SPACED SUPER DELUXE 3 ELEMENT	"MINI-BEAM" DELUXE MODEL 2 ELEMENT	FULL SIZE SUPER DELUXE 3 ELEMENT	DELUXE "TRI-BAND" 10-15 -20 MTR. 7 ELEMENT	DUO-BAND DELUXE 10-15 2 ELEMENTS ON EACH	DUO-BAND DELUXE 15-20 2 ELEMENTS ON EACH	DUO-BAND DELUXE 10-20 2 ELEMENTS ON EACH
MODEL NUMBER	3/4 M-15C	1¼ M-5C	1¼ M-15C	2M-3C	2M-5C	2M-6C	2M-8C	2M-808	2M-15C	6M-3D	6M-4C	6M-6C	6M-624	10X-26	10M-309	10M-310	10M-314	11M-309	15X-28	1530-C	15M-312	15M-318	20M-DC	20X-212	20M-316	20M-318	20M-326	40M-214	40M-56-365	TB-7E	DB-2E-1015	DB-2E-1520	DB-2E-1020
GAIN IN DB OVER TUNED DIPOLE	17.2	12.5	17.2	10.0	11.6	13.2	15.5	11.5	17.2	10.0	12.0	15.0	15.0	5.5	8.4	8.9	10.0	8.4	5.5	7.0	8.9	10.0	3.5	5.5	8.4	9.0	10.0	3.6	8.3	*	5.5	5.5	5.5
F B – RATIO IN DB	26	25	26	18	23	22	26	26	26	26	28	22	23	14	28	30	21	26	14	28	28	21	18	14	26	30	21	16	25	•	18	18	18
HORIZONTAL BEAMWIDTH	27°	48°	27°	55°	51°	46°	35°	35°	27°	55°	58°	45°	44°	65°	62°	61°	56°	62°	65°	63°	59°	56°	74°	65°	56°	55°	56°	74°	58°	64°	64°	64°	64°
VERTICAL BEAMWIDTH	28°	53°	28°	80°	52°	51°	38°	38°	28°	80°	62°	49°	49°	95°	97°	82°	76°	98°	95°	97°	81°	76°	130°	101°	85°	82°	79°	136°	90°	110°	110°	110°	110°
WIND SURFACE AREA IN SQ. FT.	.90	.50	1.72	.29	.45	.73	1.23	1.65	2.23	.95	1.20	2.60	3.80	2.09	2.03	2.55	2.90	2.03	2.62	1.50	5.92	3.98	2.3	5.98	6.02	8.53	6.27	7.15	12.6	9.27	5.5	7.2	6.2
WIND LOAD AT 100 M.P.H. (IN LBS.)	26	15	50	9	13	21	36	41	66	28	35	77	116	61	59	75	86	59	78	48	171	121	71	189	188	266	196	224	406	293	175	230	196
BOOM LENGTH	10'-6"	42"	19'-6"	34"	5'	8'-6"	13'-9"	14'-6"	27-9 WITH BOOM STRUTS	7'-7"	12'	23-4 WITH BOOM STRUTS	23-4 WITH BOOM STRUTS	6'	9'	10'	14'	9'	8'	12'	12'	18'	10'	12'	16'	18'	26' WITH BOOM STRUTS	14'	29-4' WITH BOOM STRUTS	14'	12'	12'	14'
BOOM DIAMETER (OUTSIDE)	1½"	⅞"	1½"	⅞"	⅞"	1"	1¼"	1½"	1½"	1½"	1½"	1½"	2"	2"	1½"	2"	2"	1½"	2"	1½"	2"	2"	2"	3"	2"	3"	3"	3"	3"	2"	2"	2"	2"
LONGEST ELEMENT LENGTH (APPROX.)	15"	28"	28"	3'-6"	3'-6"	3'-6"	3'-6"	3'-6"	3'-6"	8'-8"	8'-8"	8'-8"	8'-10"	15'	18'-3"	17'	18'-4"	19'	10'-5"	13'-7"	24'-6"	25'	19'	34'	36'	36'	32'-8"	46'	64'	32'-10"	25'-8"	32'-10"	32'-10"
TURNING RADIUS (APPROX.)	5'-8"	26"	11'-6"	3'	3'-6"	5'-6"	7'-6"	8'-4"	14'	6'	8'	13'	14'	10'	11'	10'	12'	11'	12'	8'-6"	13'-8"	15'	12'	18'	20'	20'	21'	24'	38'	18'	15'	17'	15'
SUPPORT MAST DIAMETER REQD.	1" OR 1½"	1" OR 1½"	1" OR 1½"	1" OR 1½"	1" OR 1½"	1" OR 1½"	1" OR 1½"	1" OR 1½"	1" OR 1½"	1½"	1½" OR 2"	1½" OR 2"	2"	1½" OR 2"	1½" OR 2"	2"	2"	1½" OR 2"	1½" OR 2"	1½" OR 2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"
ANTENNA NET WT. IN POUNDS (APPROX.)	11	2½	14	1½	2½	2¾	6	11	15	5	8	16	36	13	10	21	25	12	15	10–	32	35	12	41	18	50	54	44	90	53	23	31	32
SHIPPING WEIGHT IN POUNDS (APPROX.)	13	3	16 5	2¼	3	4	10	15	20	7	10	20	44	17	14	27	30	15	22	12–	45	48	16	62	40	58	67	66	130	63	26	36	38
SHIPPING CONTAINER SIZE (APPROX.)	3"x8" x 8'	4"x8" x3'-5"	3"x8" x 11'	3"x8" x 3'	3"x4" x5'-5"	4"x7" x 7'	4"x7" x 7'	4"x7" x7'	4"x7" x15'	4"x4" x 8'	4"x4" x 12'	6"x6" x 12'	6"x6" x12'	4"x11" x 6'	4"x3" x 9'	4"x4" x 10'	3"x7" x 14'	4"x4" x 12'	4"x6" x 8'	4"x8" x 7'	4"x4" x 12'	4"x4" x 12'	7"x8" x16'-2"	7"x19" x 12'	6"x8" x 12'	6"x12" x 12'	8"x12" x 14'	6"x10" x 15'	6"x15" x 18'	4"x12" x18'-6"	6"x6" x 12'	6"x6" x12'	6"x6" x10'
PRICE F.O.B. ASBURY PARK N.J.	$29.00	$6.95	$31.00	$5.95	$7.25	$12.50	$13.75	$33.50	$39.25	$16.25	$19.75	$57.50	$149.00	$54.00	$39.50	$62.50	$96.00	$41.50	$59.00	$46.00	$105.00	$130.00	$57.00	$105.00	$130.00	$175.00	$198.00	$180.00	$365.00	$158.00	$106.00	$132.00	$120.00

* 3 Elements 7 DB on 10 Meters, 2 Elements 5.5 DB on 15 Meters, 2 Elements 5.5 DB on 20 Meters Fed With 52 OHM Coax

• F/B ratio 19 db on 15 and 20; 22 db on 10

TELREX ARRAYS ARE CALIBRATED FOR ASSEMBLY TO OUR EXACT SPECIFICATIONS, AND TELREX ARRAYS WILL EXHIBIT CLOSE-TO-UNITY S.W.R. WHEN MOUNTED IN THE CLEAR AND AT OUR RECOMMENDED HEIGHT OR HIGHER. IMPEDANCE, S.W.R., AND GAIN-BEAMWIDTH RATE OF CHANGE VS FREQUENCY VARIES SLIGHTLY WITH EACH MODEL. SEE SEPERATE TECHNICAL SHEET FOR EACH ANTENNA FOR EXACT DATA.

EVERY TELREX ARRAY IS PRECISION TUNED, MATCHED AND CALIBRATED (CHART SUPPLIED WITH EACH ANTENNA) SO CUSTOMER CAN ASSEMBLE HIS ARRAY FOR OPTIMUM

THE MFG. RESERVES THE RIGHT TO MAKE CHANGES IN ALL SPECIFICATIONS AND PRICES SHOWN ABOVE. ALL PRICES ARE F.O.B. ASBURY PARK N.J. (SPECIAL WOODEN SHIPPING BOXES FOR OVERSEAS SHIPMENT WILL BE APPROX. $10.00 TO $18.00 ADDITIONAL TO ABOVE PRICES.)

DIAMOND "E" COLD DRAWN SEAMLESS 1025 TENSILE MECHANICAL STEEL TUBING

1-1/2" O.D. x .125 x 16 ft	$26.00
1-1/2" O.D. x .156 x 16 ft	28.00
1-1/2" O.D. x .250 x 14 ft	22.00
2" O.D. x .134 x 8 ft	17.00
2" O.D. x .134 x 16 ft	30.00
2" O.D. x .250 x 12 ft	$34.00
2" O.D. x .250 x 16 ft	45.00
2" O.D. x .250 x 20 ft	56.00

TELREX BEAM ROTATOR AND DIRECTION-CONTROL INDICATOR SYSTEM

Model 200RS HEAVY-DUTY $360.00

Rotators and Indicators for other commercial applications designed and built to order. Prices on request.

PLEASE TURN PAGE for OTHER AVAILABLE ARRAY

2 METER "BEAMED POWER-PERFECT MATCH" "BALANCED PATTERN"

NO. 250 ILLUSTRATED
HORIZONTALLY MOUNTED

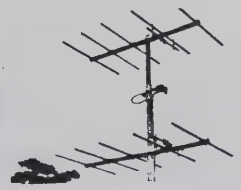
5 ELEMENT UNI-DIRECTIONAL ARRAY.
11.2 db gain, 53° beamwidth. 20 db F/B ratio. Can be vertically or horizontally stacked. Complete with 2" boom, 7/8" elements, 1/2 wave "Balun" and junction terminal block.
MODEL 250 **AMATEUR NET $45.00**
Net Wt. 8 lbs.

"TWIN-FIVE" – 10 ELEMENT. (Half-Wave Stacked 5 Element Arrays).
15.6 db gain, 50° beamwidth. Can be vertically or horizontally stacked. Complete with 2" boom, 7/8" elements, spacing boom, coaxial 1/2 wave "Balun" and junction terminal block.
MODEL 255 **AMATEUR NET $90.00**
Net Wt. 18 lbs.

"TWIN-FIVE" STANDARD - 10 ELEMENT (Half Wave Stacked 5 Element Arrays)
"BEAMED POWER-PERFECT MATCH" "BALANCED PATTERN". Supplied for vertical or horizontal stacking. Complete with 1/2 wave "Balun"
MODEL 2M-5-S **AMATEUR NET $27.50**
Net Wt. 12 lbs.

The above beams can be easily rotated with a Tenna-Rotor. The standard mounting hole supplied is a 1-3/8" I.D. hole for 1-3/8" masting. (Can also be supplied with mounting hole to take 2" dia. mast.)

NO. 2M-5-S STACKED ARRAY ILLUSTRATED
VERTICALLY MOUNTED



NO. 255 STACKED ARRAY ILLUSTRATED
HORIZONTALLY MOUNTED

NO. 255 STACKED ARRAY
VERTICALLY MOUNTED

---

10 METER . . . "TWIN-THREE" "BEAMED POWER - PERFECT MATCH" - "BALANCED PATTERN", 6 element - Two 3 ELEMENT ARRAYS. 1/2 WAVE HORIZONTALLY STACKED. Complete with special support masting, 1/2 wave coaxial "Balun", phasing lines and terminal block. Compact H & E plane pattern, gain better than 13 db, F/B ratio approximately 26 db. (No other array can be mounted above or below.)
MODEL 10M-3-S **AMATEUR NET $183.00**

"TWIN-FIVE" - TEN METER "MONARCH" - "BEAMED POWER - PERFECT MATCH" - "BALANCED - PATTERN" ROTARY . . . 10 ELEMENTS - TWO 5 ELEMENT ARRAYS STACKED 1/2 WAVE APART. Complete with special support masting - 1/2 wave coaxial "Balun", phasing lines and terminal block. Compact H & E plane pattern, gain better than 15.6 db, F/B ratio approximately 30 db. (No other array can be mounted above or below.) 52 ohm feed.
MODEL 10M-5-S **AMATEUR NET $271.00**

"TWIN-THREE" - 20 METER "MONARCH". SPECIAL ORDER ONLY. "BEAMED POWER - PERFECT MATCH" "BALANCED PATTERN" - 6 element - Two 3 element arrays stacked 1/2 wave apart. The ultimate in 20 meter performance. Precision tuned and matched complete with special support masting, 1/2 wave coaxial "Balun", phasing lines, and terminal block. Compact H & E plane pattern, gain better than 13 db, F/B ratio approximately 26 db. This unit requires a special tower, ball bearing, thrust bearings and special rotator. (No other array can be mounted above or below.) 52 ohm feed.
MODEL 20M-3-S **AMATEUR NET $555.00**
Complete, less bearings, tower or rotator, or coaxial cable.

MULTI-BAND ARRAYS — ON ONE MAST

3 El. 10, over 3 El. 15, over 3 El. 20 with precision drilled 18'x2"O.D. Diamond E masting
Amateur Net $330.00

3 El. 10, over 3 El. 15, over 5 El. 20 with precision drilled 18'x2"O.D. Diamond E masting
Amateur Net $450.00

3 El. 10, over 5 El. 15, over 5 El. 20 with precision drilled 18'x2"O.D. Diamond E masting
Amateur Net $550.00

6 El. 10, over 5 El. 15, over 5 El. 20 with precision drilled 21'x2"O.D. Diamond E masting
Amateur Net $615.00

Other combinations available complete with proper masting, precision spaced and drilled to eliminate beam interaction. Specify center frequency preferred on various bands. (Longer masting available at extra cost.)

MASTING Diamond E, Seamless Cold Drawn Carbon Steel, Mechanical Tubing Precision drilled, and painted with two coats of "Duco".

12-ft. x 2in. O.D., 10guage	$23.50
16-ft. x 2in. O.D., 10guage	31.00
20-ft. x 2in. O.D., 10guage	35.00

Above masting also available undrilled, unpainted. Prices on request

Heavy Duty Dural 61ST6, .125" wall (for one or two arrays)

12-ft. x 2in. O.D.	14.00

A-458
54R17

BOOKLET H-130

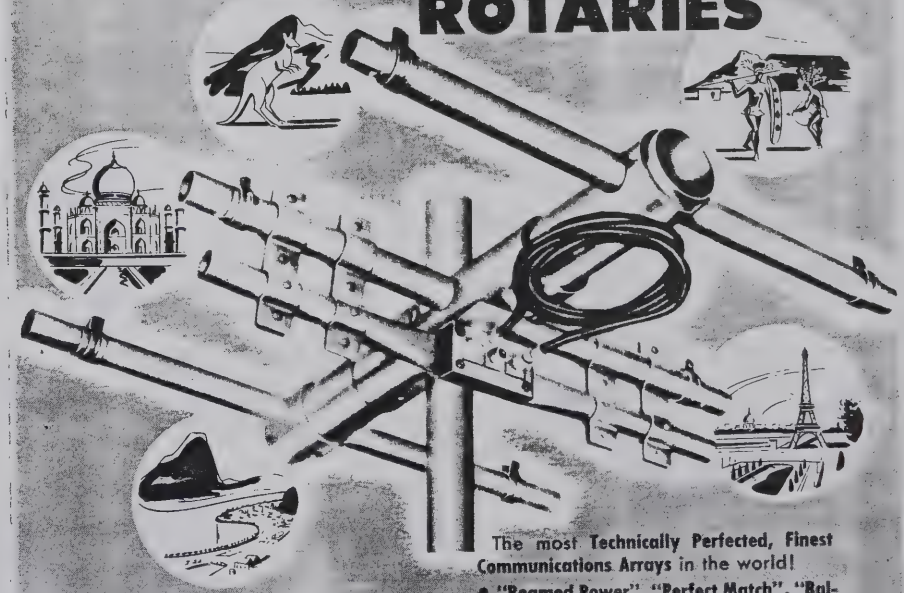
YOU'RE THERE!

—with

TELREX

PRE-TUNED

"BEAMED POWER" ROTARIES



Are you weary of endless antenna pruning and adjustment and a variety of doubtful results? End your antenna problems once and for all by installing a Telrex "Beamed Power – Perfect Match" Rotary.

Telrex "Communications Quality" rotaries are built to the highest standards, precision pre-tuned and matched for balanced pattern and optimum performance at your site, whether in Brooklyn or Timbuctoo. Order your Telrex Beamed Power Rotary now!

The most Technically Perfected, Finest Communications Arrays in the world!

- **"Beamed Power", "Perfect Match", "Balanced Pattern"** Rotaries for 2, 6, 10, 15, 20, 40 meters or combinations
- All Telrex "Beamed Power" Pre-Tuned arrays are completely integrated, **electrically and mechanically!**

Special Rotaries designed and built for commercial installations.

Be sure it's a "CONICAL V-BEAM" —Look for the TELREX Trademark

telrex INC.

CONICAL V-BEAMS

AMERICA'S STANDARD OF COMPARISON

ASBURY PARK , N. J.

THE SKILL TO DESIGN
THE FACILITIES TO PRODUCE
THE ABILITY TO DELIVER

TELREX DE LUXE and "MONARCH" SERIES

MODEL NO.	DESCRIPTION	PRICE	BOOM DIMENSIONS	DB GAIN	F/B-RATIO IN DB
2-Meters					
2M-1836	18 el. Optimum-Spaced, Full Size	$145.00	36' x 2" OD *	19.2	27
6-Meters					
6M-1336	13-el. "Monarch" Series	310.00	36' x 3" OD *	17.8	30
10-Meters					
10M-512	5-el. Close Spaced	125.00	12' x 2" OD	11.2	30
10M-636	6-el. Optimum-Spaced, Super De Luxe	280.00	36' x 3" OD *	13.8	26
10M-1044	10-el. "Monarch" Series	590.00	44' x 3" OD *	17.2	40
15-Meters					
15M-426	4-el. Optimum-Spaced	195.00	26' x 3" OD *	11.2	25
15M-537	5-el. Optimum-Spaced	250.00	37' x 3" OD *	12.3	32
15M-845	8-el. "Monarch" Series	590.00	45' x 3" OD *	16.3	40
20-Meters					
20M-532	5-el. Medium-Spaced, Super De Luxe	315.00	32' x 3" OD *	12.0	30
20M-436	4-el. Optimum-Spaced, Super DeLuxe	305.00	36' x 3" OD *	11.8	26
20M-646	6-el. "Monarch" Series	590.00	47' x 3" OD *	15.2	45
NEW "MONARCH" - "TRI-BAND"					
Model No. "Monarch" MTB-7E	7-el. "Monarch" Series	275.00	14' x 3" O.D.	10M- 8.0 15M- 5.5 20M- 5.5	10M- 22 15M- 18 20M- 18

* with boom struts

TELREX "BALANCED-BEAMED-POWER" UNITY GAIN ROTABLE DIPOLE

Laboratory tuned and matched, hairpin resonated and coaxial half-wave "Balun" fed for clean cut balanced, Bi-directional pattern. Designed for service in all communication application requiring a Bi-directional-radiation pattern.

	Net Price
10 - Meter Dipole	$ 23.00
15 - Meter Dipole	26.00
20 - Meter Dipole	34.00
40 - Meter Dipole	75.00

MOUNTING ACCESSORIES

P -100	Flange (pipe)	$ 2.50
P -101	Radial Thrust Bearing (2" Mast)	15.00
P -104	Radial Thrust Bearing (1-1/2" Mast)	11.75
SP-213	Steel Plate (not bored)	5.00
SP-214	Steel Plate (bored to fit prop pitch motor)	9.00
SP-215	Angle Iron Frames (2 pieces)	11.50
SP-216	Steel Plate (drilled for thrust bearing)	3.50
SP-217	Steel Plate (drilled for micarta bearing)	3.50
SP-218	Micarta Bearing	4.00
SP-223	Mast Clamp	5.60
SP-224	Steel Plate (drilled for 200RS)	3.50
SP-228	Mast Clamp for 200RS	7.50
SP-231	Steel Plate for top of pole and drilled for bearing	7.50
SP-243	Cycolac Insulator (2" boom)	8.50
SP-244	Cycolac insulator (3" boom)	13.50
	Gusset Plate (2" boom)	6.00
	Gusset Plate (3" boom)	7.50
	Silicone Compound (8 oz. tube)	6.50
	Silicone Compound (2 oz. tube)	2.10
	Anti-Seize Compound (1/2 oz. tube)	.75

Coaxial Phasing Harness

Model	Price
2M-5C	$ 10.25
2M-6C	10.25
2M-8C	12.00
2M-15C	16.00
6M-3D	12.00
6M-4C	12.00
6M-6C	17.00

Phasing Bars

2M-3C	.85

Open Phasing Line

1-1/4M-5C	4.25

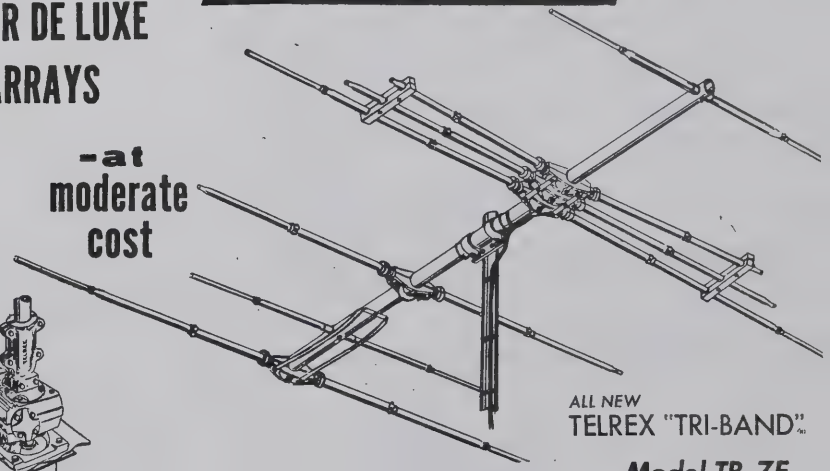
Precision Tuned and Matched for TOP Performance

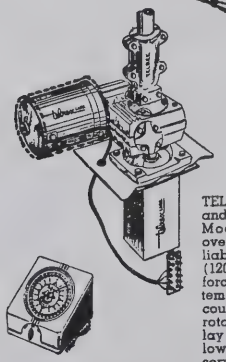
FAMOUS telrex

CATALOG H-59

DE LUXE and SUPER DE LUXE ARRAYS

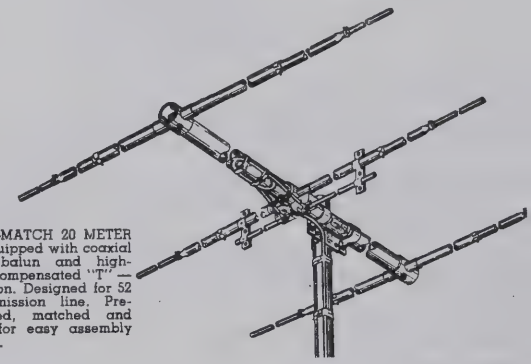
-at moderate cost





TELREX Heavy-Duty Rotator and Direction-Control System Model 200RS. Specifically overdesigned for utmost reliability and high torque (1200 inch-lbs.) in hurricane force winds. Indication system selsyn controlled, directly coupled to output shaft of rotator. Highly responsive relay switching system assures low cost, highly efficient service

ALL NEW
TELREX "TRI-BAND"
Model TB-7E



NEW "T"—MATCH 20 METER ARRAY—Equipped with coaxial half-wave balun and high-efficiency, compensated "T" — match section. Designed for 52 ohm transmission line. Precision tuned, matched and calibrated for easy assembly at your site.

HIGHEST SIGNAL-TO-NOISE, SIGNAL-TO-INTERFERENCE RATIO EVER!

- Gusset plate mounting
- Hair-pin resonated
- Wind drag reduced 55%
- Rugged, lightweight aluminum construction
- All stainless steel hardware

ASK THE AMATEUR WHO OWNS ONE!

Whether you are limited for space or money, or whether money is no problem, Telrex has the best suitable array for you. Every Telrex array is fully integrated mechanically and electrically to provide outstanding performance per element. The unsurpassed superiority of Telrex arrays is why the most outstanding radio amateurs, including the world's champion DX'er, use Telrex.

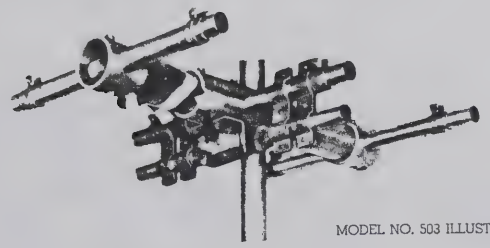
NOW! Telrex features the best arrays ever produced, and new lower cost models designed to do the job.

All Telrex arrays are precision tuned and matched for optimum results per element at your site without experimentation or cut and try.

Super De-Luxe models employ all stainless steel hardware, lower cost models employ heavy cadmium plated hardware. A heavy-duty gusset plate mast fastener supplied with every array.

A model to fit every purse or requirement from ¾ thru 40 meters.

Write our engineering department for assistance in laying out an antenna system whether you intend to be represented on the frequency or whether you intend to dominate the frequency!



MODEL NO. 503 ILLUSTRATED

20-METER . . . 2 ELEMENT UNI-DIRECTIONAL ARRAY.
.1 wavelength spaced director, tuned and calibrated for balanced pattern, 5.6 db gain, 65° beamwidth, 20 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 6' 4" x 3" boom; 1-1/2" dia. center elements, 1-3/8" dia. telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors.
MODEL 502 **AMATEUR NET $97.00**
Net Wt. 45 lbs approx

20-METER . . . 3 ELEMENT UNI-DIRECTIONAL ARRAY.
.12 wavelength spaced reflector and director, tuned and calibrated for balanced pattern, 8.9 db gain, 60° beamwidth, 26 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 16' 3" x 3" boom; 1-1/2" dia. center elements, 1-3/8" dia. telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors.
MODEL 503 **AMATEUR NET $120.00**
Net Wt. 47 lbs. approx.

20-METER . . . 4 ELEMENT UNI-DIRECTIONAL ARRAY.
.12 wavelength spaced reflector and 2 directors, tuned and calibrated for optimum gain, balanced pattern, 9.7 db gain, 56° beamwidth, 28 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 24' x 3" boom; 1-1/2" dia. center elements, 1-3/8" dia. telescoping sections. Complete with steel boom-brace struts, special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors.
MODEL 504 **AMATEUR NET $185.00**
Net Wt. 71 lbs.

20-METER . . . 5 ELEMENT UNI-DIRECTIONAL ARRAY.
.12 wavelength spaced reflector, and 3 directors, tuned and calibrated for balanced pattern, 11.2 db gain, 53° beamwidth, 30 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 32' 4" x 3" boom; 1-1/2" dia. center elements, 1-3/8" dia. telescoping sections. Complete with steel boom-brace struts, special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors. Will out-perform a good Rhombic.
MODEL 505 **AMATEUR NET $240.00**
Net Wt. 95 lbs.

"MINI-BEAM"

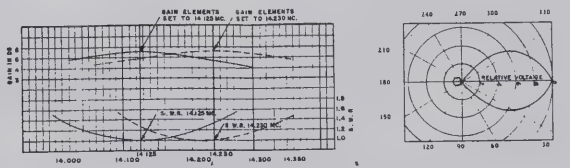
MODEL NO. 520 ILLUSTRATED

20-METER . . . "MINI-BEAM" (COMPACT 2 ELEMENT ROTARY)
A precision, pre-tuned 20 meter array with a rotating radius of less than 11 feet! Constructed to the TELREX high standards for mechanical strength, yet . . . the "MINI-BEAM" weighs only 11 pounds! So light that a good TV rotator will handle it with adequate safety!
PERFORMANCE – Just check these specs against ANY beam! 12 db F/B ratio, 4.6 db gain over a full size reference dipole, 1:1 S/W/R at 14.250 kc; better than 1.3:1 at phone band edges! 7 foot x 2" O.D. boom, with 1" x 2" reinforcing center sleeve. Telescoping elements 3' 9" each side of center loading coupling coil. Built-in SO-239 receptacle for 52 ohm coax. Can be used with 75 ohm line also. Precision tuned and matched - no cut and try! No formulas!
MODEL 520 **AMATEUR NET $55.50**
Net Wt. 11 lbs.

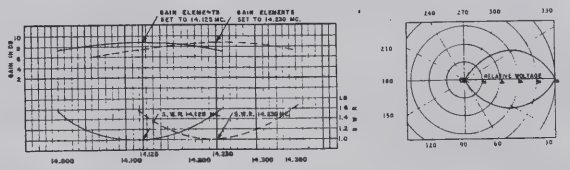
[illegible] Valley Park, N. Y.
[illegible] subject to cl[illegible]
[illegible] in case of [illegible]
[illegible] express unless oth[illegible]

Produced and printed in the United States by TELREX INC.

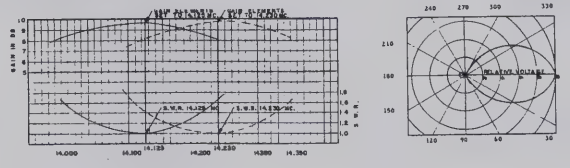
The photo illustrates a 3 element, 10 meter over 3 element 15 meter over 5 element 20 meter installation of Telrex "Beamed Power" Rotaries at W2BDS.



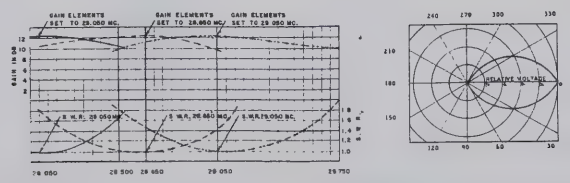
TYPICAL GAIN and S/W/R CURVES, and DIRECTIVITY PATTERN for 2 ELEMENT "BEAMED POWER" ROTARIES.



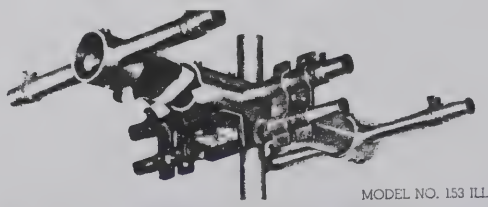
TYPICAL GAIN and S/W/R CURVES, and DIRECTIVITY PATTERN for 3 ELEMENT "BEAMED POWER" ROTARIES.



TYPICAL GAIN and S/W/R CURVES, and DIRECTIVITY PATTERN for 4 ELEMENT "BEAMED POWER" ROTARIES



TYPICAL GAIN and S/W/R CURVES, and DIRECTIVITY PATTERN for 5 ELEMENT "BEAMED POWER" ROTARIES.

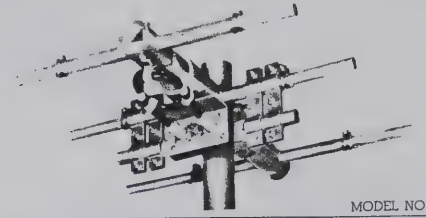


MODEL NO. 153 ILLUSTRATED

15-METER . . . 3 ELEMENT UNI-DIRECTIONAL ARRAY.
.135 wavelength spaced reflector and director, tuned and calibrated for balanced pattern, 8.9 db gain, 60° beamwidth, 26 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 12' 5" x 3" boom; 1-1/2" dia. center elements, 1-3/8" dia. telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors.
MODEL 153 **AMATEUR NET $110.00**
Net Wt. 49 lbs.

15-METER . . . 5 ELEMENT UNI-DIRECTIONAL ARRAY.
.135 wavelength spaced reflector, and 3 directors, tuned and calibrated for balanced pattern, 11.2 db gain, 53° beamwidth, 28 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 24' 6" x 3" boom; 1-1/2" dia. center elements, 1-3/8" dia. telescoping sections. Complete with steel boom brace struts, special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors. Will out-perform a good Rhombic.
MODEL 155 **AMATEUR NET $210.00**
Net Wt. 74 lbs.

10 METER "BEAMED POWER-PERFECT MATCH" "BALANCED PATTERN"



MODEL NO. 10M-3 ILLUSTRATED

10-METER . . . 3 ELEMENT UNI-DIRECTIONAL ARRAY.
.12 wavelength spaced reflector and director, tuned and calibrated for balanced pattern. 8.9 db gain, 60° beamwidth, 26 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61S-T6 – 8' 5" x 2" boom; 7/8" dia. center elements, 3/4" dia. telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors. Easily rotated by Tenna-Rotor.
MODEL 10M-3 **AMATEUR NET $67.50**
Net Wt. 20 lbs.

10 METER . . . 5 ELEMENT UNI-DIRECTIONAL ARRAY
.12 wavelength spaced reflector, and 4 directors, tuned and calibrated for balanced pattern, 11.2 db gain, 53° beamwidth, 28 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line
CONSTRUCTION
All 61ST6 - 12'6"x2" boom; 7/8" dia. center elements, 3/4" telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors.
MODEL 10M-5 **AMATEUR NET $108.00**
Net Wt. 27 lbs.

10-METER . . . 6 ELEMENT UNI-DIRECTIONAL ARRAY.
.12 wavelength spaced reflector, and 4 directors, tuned and calibrated for balanced pattern, 12.1 db gain, 50° beamwidth, 29 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line.
CONSTRUCTION
All 61ST6 – 20' 4" x 3" boom; 7/8" dia. center elements, 3/4" telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors. Will out-perform a good Rhombic.
MODEL 10M-6 **AMATEUR NET $130.00**
Net Wt. 40 lbs.

6-METER . . . 5 ELEMENT UNI-DIRECTIONAL ARRAY.
.12 wavelength spaced reflector, and 3 directors, tuned and calibrated for balanced pattern, 11.2 db gain, 53° beamwidth, 28 db F/B ratio. Accurately matched for unity S/W/R to 50 ohm coaxial line. (Can be half-wave stacked for additional gain.)
CONSTRUCTION
All 61ST6 – 11' 6" x 2" boom; 7/8" dia. center elements, 3/4" dia. telescoping sections. Complete with special Telrex "Perfect Match" Balun, T-Transformer, and Terminal Block with SO-239 coaxial connectors. Easily rotated by Tenna-Rotor.
MODEL 6M-5 **AMATEUR NET $85.00**
Net Wt. 16 lbs.

6 METER . . . "TWIN-FIVE" - 10 ELEMENT "MONARCH SERIES" (Half Wave Stacked 5 Element Arrays) **"BEAMED POWER" - PERFECT MATCH" "BALANCED PATTERN"**, complete with 16 foot length 2" O.D. mast and 1.2 wave "Balun.
MODEL 6M-5-S **AMATEUR NET $214.00**

T E L R E X

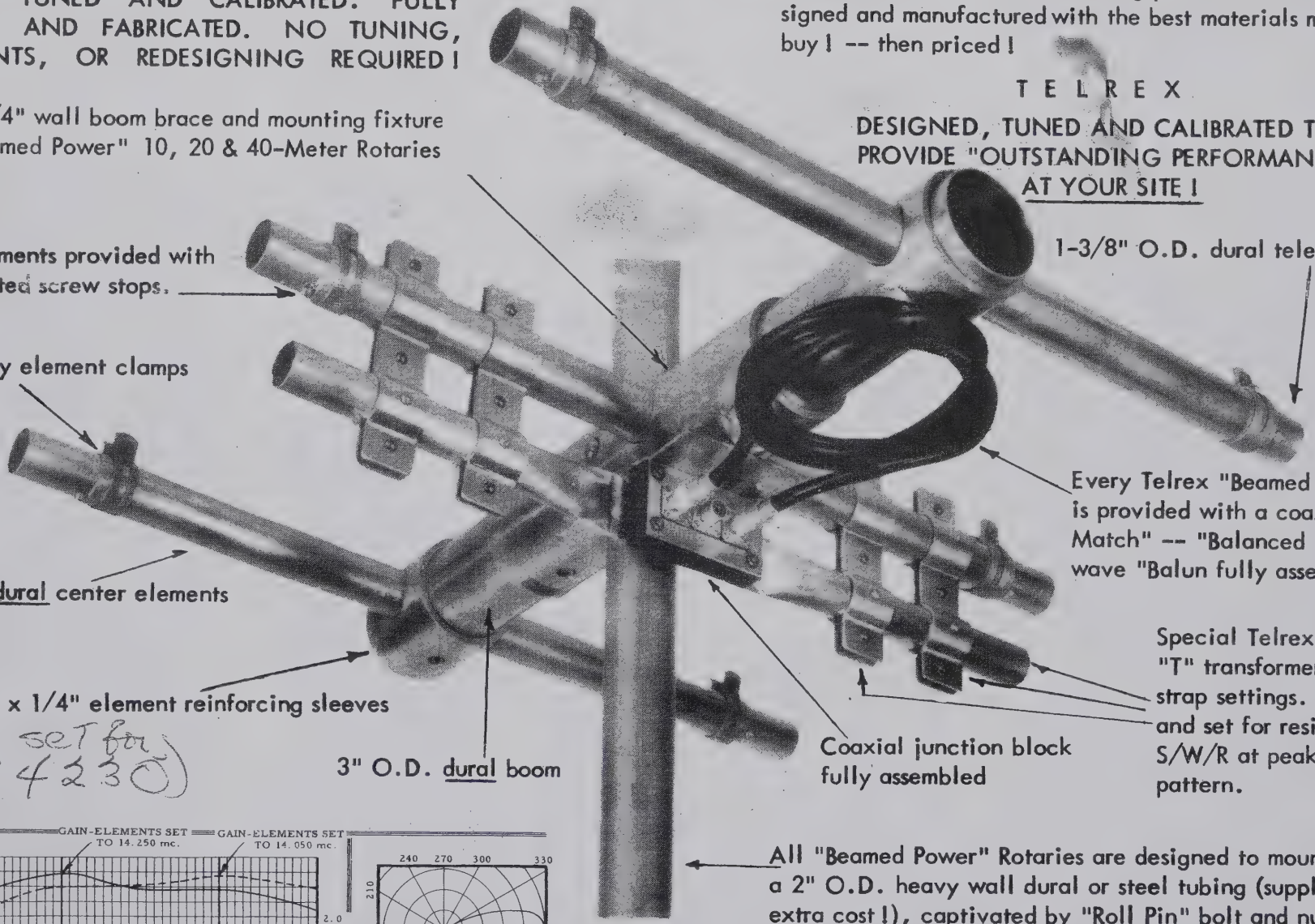
"BEAMED POWER" -- "PERFECT MATCH" ROTARIES, PRECISION TUNED AND CALIBRATED. FULLY MACHINED AND FABRICATED. NO TUNING, ADJUSTMENTS, OR REDESIGNING REQUIRED !

3-1/2" x 1/4" wall boom brace and mounting fixture on all "Beamed Power" 10, 20 & 40-Meter Rotaries

Close up photo of Telrex 15 and 20 Meter "Beamed Power" "Perfect Match" Rotaries showing pertinent features. Designed and manufactured with the best materials money can buy ! -- then priced !

T E L R E X

DESIGNED, TUNED AND CALIBRATED TO PROVIDE "OUTSTANDING PERFORMANCE" AT YOUR SITE !



All elements provided with calibrated screw stops.

Heavy duty element clamps

1-1/2" dural center elements

3-1/2" x 1/4" element reinforcing sleeves

(set for 14230)

3" O.D. dural boom

1-3/8" O.D. dural telescoping ends

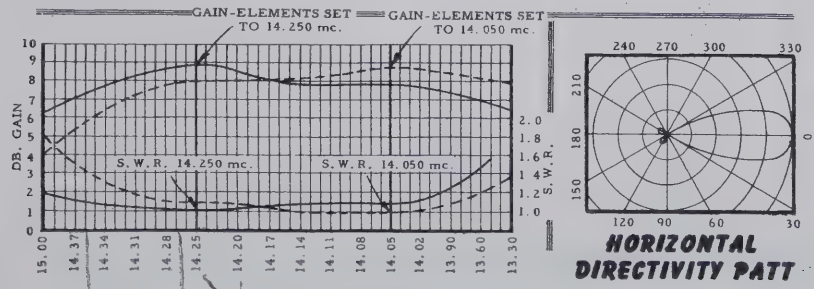
Every Telrex "Beamed Power" Rotary is provided with a coaxial "Perfect Match" -- "Balanced Pattern" half-wave "Balun fully assembled.

Special Telrex developed "T" transformer with dual strap settings. Calibrated and set for resistive, unity, S/W/R at peak gain and pattern.

Coaxial junction block fully assembled

All "Beamed Power" Rotaries are designed to mount onto a 2" O.D. heavy wall dural or steel tubing (supplied at extra cost !), captivated by "Roll Pin" bolt and nut supplied with each beam.

All Telrex Beams are dynamically balanced



HORIZONTAL DIRECTIVITY PATT

14350 14200

A-438(8)-4-20-54

3 ELEMENT "BEAMED POWER ROTARIES" TYPICAL GAIN & S.W.R. CHARACTERISTICS

Telrex INC. ASBURY PARK, N. J.

INSTALLATION NOTES AND HINTS FOR
TELREX "BEAMED POWER - PERFECT MATCH"
PRE-TUNED ROTARIES FOR 2, 6, 10, 15, 20 and 40 METERS

THIS BEAM, SERIAL # 6249, WAS PRECISION TUNED AND CALIBRATION SCREWS ARE SET TO 14230 KC.

GENERAL

Telrex Pre-tuned "Beamed Power - Perfect Match" Rotaries are completely integrated units with maximized spacing, precision tuned and calibrated. (Stops are provided to reassemble the beam to our settings for optimum gain, balanced pattern, F/B ratio and broad-band resistive match.) Our design reflects over a quarter century of rotary beam experience and over two and one-half years of actual on-the-air field testing; your assurance of outstanding performance at your site, with no tuning or matching problems. Note: Any deviation from our precise calibration can seriously affect performance. Please read assembly directions and notes carefully !

Every Telrex "Beamed Power" Rotary is precision machined and honed for perfect fit and alignment without forcing. Each element and "T" match section is marked and indexed with screw stops at calibration points to eliminate the need to use a foot rule at assembly. Since all of the beams in this series of arrays are of similar design, the data included will enable you to get any of the units together without fuss or bother.

MOUNTING

All Telrex "Beamed Power" Rotaries incorporate a single hole reinforced sleeve, machined to fit onto a 2" O.D. support mast. This design makes feasible multiple band operation on a single rotating mast, with minimum bulk and wind loading, with no interaction between arrays when spaced according to our specifications. Our beams can also be mounted directly to the rotating table of many makes of rotators by ignoring the mounting hole feature and building a cradle on the rotator. Caution ! ! Do not interlace our beams.

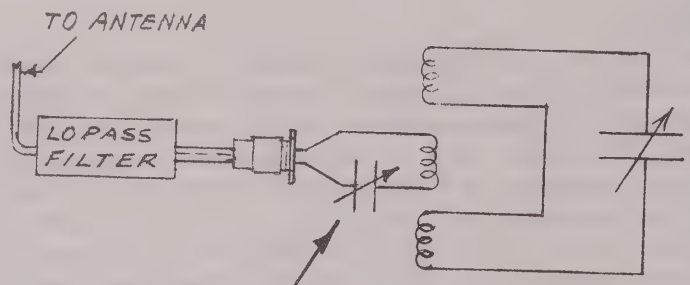
TELREX "BEAMED POWER - PERFECT MATCH" COMBINATION

Every Telrex 2, 6, 10, 15, 20 and 40 meter "Beamed Power" Rotary is equipped with a special dual-strap 'T' transformer and coaxial "Perfect Match" Balun. The Telrex Coaxial Half-Wave Balun, special T-match bars and dual connecting straps comprise the best method of obtaining optimum coupling to a balanced dipole, at a higher voltage point, and provides the means of eliminating inductive or capacitive reactance by the use of secondary (reactance) straps which act semi-independently of the impedance setting, without the necessity of detuning the beam from optimum pattern, (a method generally resorted to in an endeavor to eliminate reactance at proper match point). The combination provided by the coaxial balun (which is in essence a 180 degree phase shift device and a 4 to 1 transformer) and our special dual-strap 'T' transformer enables us to couple to a much higher voltage point on the non-split dipole. This design feature reduces dipole noise considerably. This method of coupling also provides a lower "Q" or "fat dipole" effect, so that our match remains resistive over a broader band of frequencies.

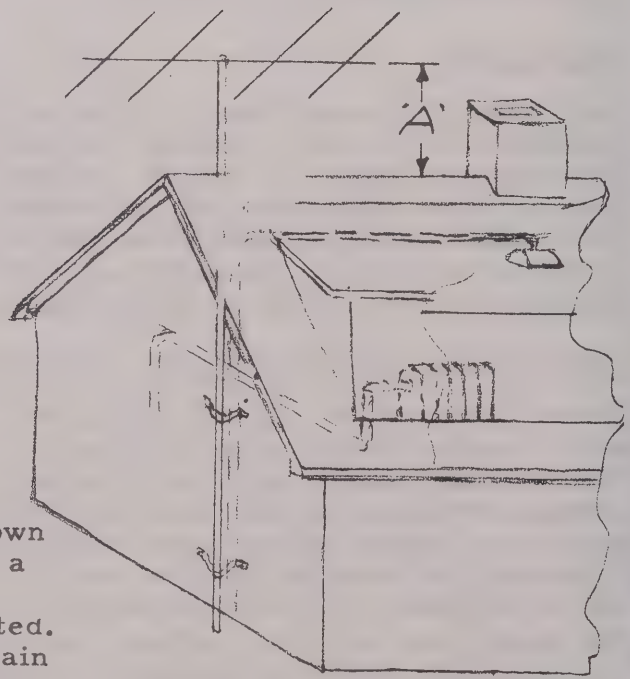
A-438-4-20M 4
PRINTED IN THE UNITED STATES

I.

Method of using a series capacitor to eliminate line reactance (if present) on link coupled transmitters feeding a co-axial transmission line.



Set this capacitor to maximum (full mesh), then check tuning of final. Reduce capacity and recheck final. Adjust to capacity value which permits tuning transmitter to rated output with minimum coupling.



II.

If your beam is mounted about as shown in the sketch, with distance "A" only a few feet, your transmitter may show different loading as the array is rotated. If so, you can be sure that pattern, gain and match are affected. Remedy: Relocate or raise antenna to minimize reaction with house plumbing and wiring skeleton.

telrex INC. ASBURY PARK, N. J.

Our "Beamed Power - Perfect Match" pre-tuned arrays will exhibit unity resistive match for a band-width of approximately 70 to 800 KC, (depending on number of elements and frequencies in use), with optimum performance across a major portion of the various amateur frequencies before the S/W/R rises to approximately 1.5/1. (Incidentally, a 1.5/1 S/W/R is well within commercial tolerances and is considered excellent !) Note: Some of our beams are also supplied with additional pre-tuned calibration points so as to allow centering the optimum performance at another part of the band for special requirements.

Note ! It is our contention that with a multi-element beam (2 elements or more) ground effects are reduced considerably. We have actually checked the VSWR with our beams at varying heights above normal country ground (no hidden sewer pipes, etc.), and we find our beams will exhibit the ultimate in standing wave ratio, viz unity, and at approximately 18 ft. from ground on some of the larger beams, the resonant point will be lower in frequency anywhere from 20 to 80 KC. At 28 ft. above ground, the 20 meter beam will exhibit resonance at the tuned point. Bringing the beam to 100 feet may increase the resonant frequency 1 to 5 KC. Thus, we recommend placing your beam at least 18 ft. above metal that could be resonant, and if the metal assumes the proportion of a ground screen, such as a copper roof, we recommend the beam be mounted at least 1/2 wave above the metal roof at the frequency of the beam; approximately 16 ft. for 10 meters; 32 ft. for 20 meters.

INSTALLATION HINTS

To assure long-life and peak-performance, protect your beam against corrosion and vibration. First, when the beam is fully assembled, pour approximately 1 or 1-1/2 pounds of "Vermiculite" insulation granules in each element and plug the element ends with a cork. This dampens vibration and reduces reverberation. This is generally necessary only on the 15 and 20 meter beams ! Second, carefully wipe or blow clean all oil, dirt, or residue at the telescoping joints and T-bar connections, tape with good electrical tape and spray with "Krylon" or any other good varnish to prevent unraveling of the tape. Note ! Make sure you have tightened the coaxial connectors firmly. Special attention should be given to protecting the balun connectors and terminal panel. Wrap with tape, and varnish.

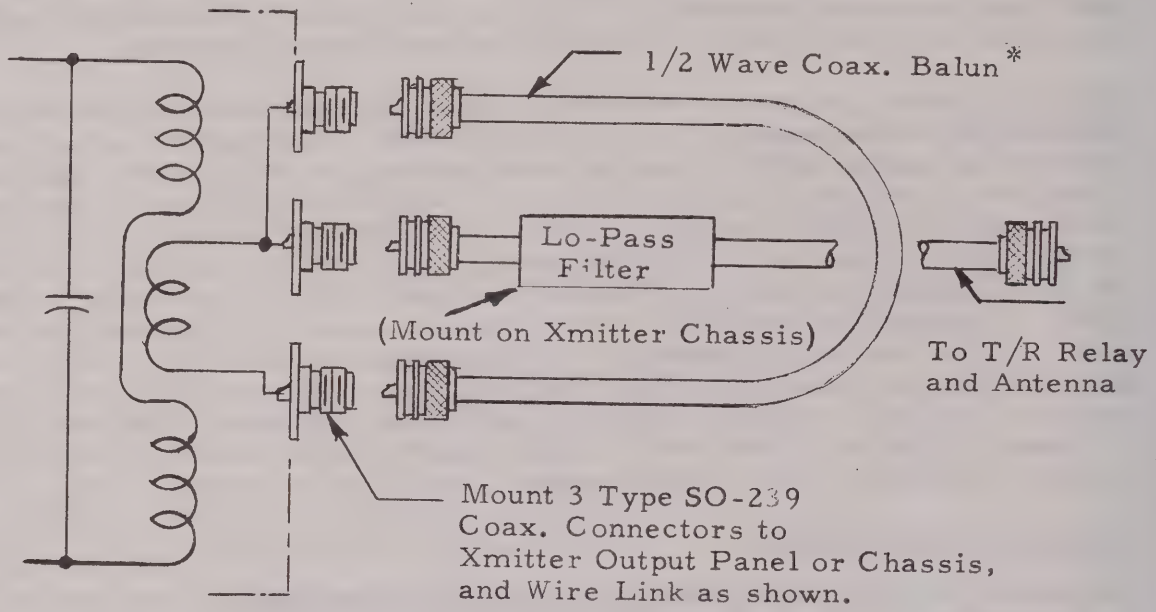
The excellent multi-band transmitters now available, together with this series of Telrex Rotary Beams make top performance, multi-band operation on one common mast practical for the first time. In addition a single transmission line system is possible, thereby making feasible the more costly RG-14/U or the new Andrews Type HF-O Heliax dry air filled 7/8" line. A remotely controlled, multi-position coaxial switch (such as Thompson Products Switch C16N6AA, or equal) is then necessary to switch the individual beams to the one transmission line. Of course, this rather elaborate installation is costlier than a conventional one, but is often worthwhile when long transmission lines must be employed. If only 2 band operation is desired, an inexpensive Advance relay #7200, properly protected from the weather, will work excellently.

ROTATION

Diagrams and photos are included so that you can more easily understand recommended procedures for mounting and rotating with a manufactured rotator. Also included is a photo of a home-brew rotator which you can have machined locally using the parts specified. If only one band operation is required our beams can be directly mounted to the rotating frame of any rotator you may own such as Gordon, Trylon, Johnson, Mims or similar rotator, by disregarding the mounting

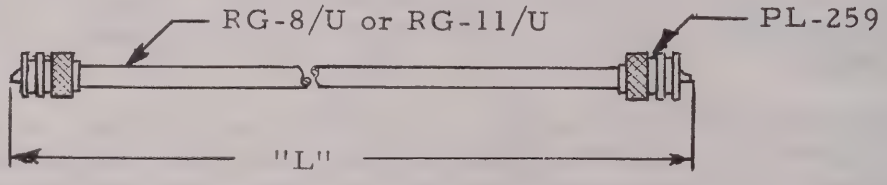
III.

How to construct a 1/2 wave Coaxial "Balun" to convert your link coupled transmitter for coaxial feed. Reduces T-V-I, improves match, increases transmitter efficiency.



Coaxial Balun can be coiled in a radius of 7" to 9". Lengths given below will cover all band operation. This coaxial line can be 72 ohm, RG-11/U or 52 ohm, RG-8/U.

* BALUN CONSTRUCTION



Baluns for Each Band will have Dimension "L", as follows:

Band	"L"
2 Meter	2' - 4"
6 Meter	6' - 5"
10 Meter	11' - 4"
15 Meter	15' - 6"
20 Meter	22' - 10"
40 Meter	45' - 6"

telrex INC. ASBURY PARK, N. J.

A-438(2)-4-20-54

IV When 5 or more beams are employed, there is often an operational advantage in feeding with a single low loss coax and switching at the tower. This is especially true for line runs of 200 ft. or more between Xmitter and antennas, when a low loss cable can "save" up to 1.5 db.

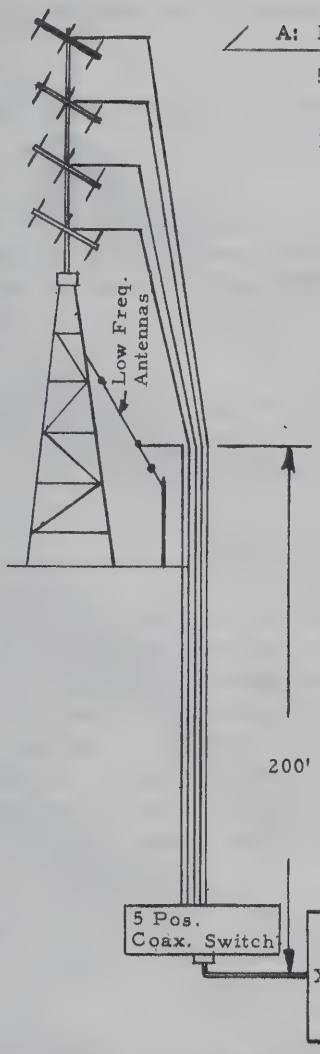
The layout sketches for multiple vs. single coax feed gives approximate costs as a basis for deciding which arrangement best fits your plans ... and your pocketbook.

A: Multiple cable feed for 5 beams

5 - 200 ft. lengths RG-8/U @ 12¢/ft. $120.00

1 - Coax Switch (Bird or similar) 58.00

$178.00 (approx.)

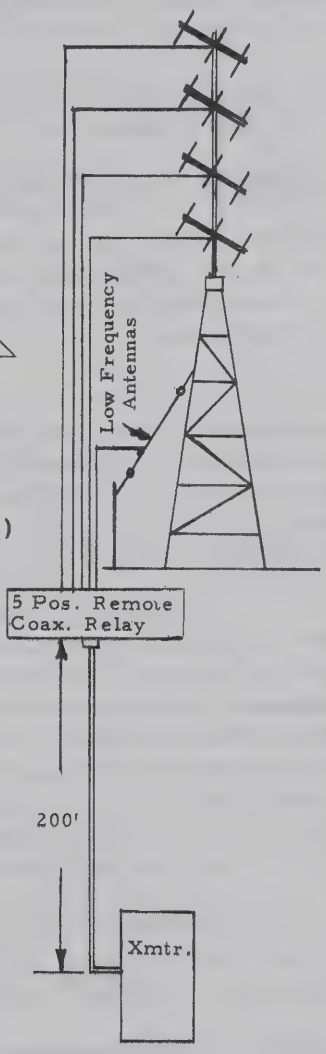


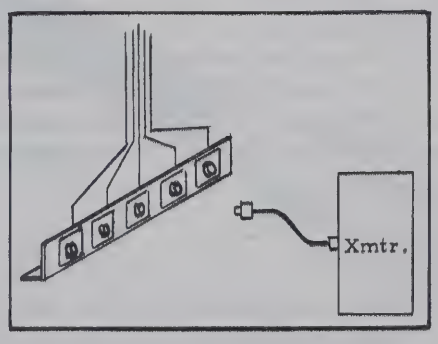
B: Single cable feed for 5 beams

1 - 200 ft. length RG-14/U @ 40¢/ft. . . . . $ 80.00

1 - 5-6 Pos. Remote Coax Switch (Thompson Products or similar) 200.00

$280.00 (approx.)





Alternate arrangement using coax connectors in place of coax switch. In operation, a mating connector attached to cable from transmitter engages with connector from any one of the antennas. "C" type (bayonet) connectors (Receptacle UG-568/U , Plug UG-573/U) are recommended for quick connect-disconnect. However, other type coax connectors may be used.

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hole and fabricating a mounting bracket similar to the ideas presented in our supplementary data sheets. Avoid using slip rings or other devices. They can introduce discontinuity and destroy our matching. In addition, they limit your installation to two band operation, become noisy and can create TVI. If limit switches are provided on your rotated mast, coaxial line properly 'dressed' can be revolved through 370 degrees without damage.

Caution ! Do not attempt to rotate a 15 or 20 meter beam with a television rotator. The TV rotator will last approximately one week !

SUPPORT MASTING

Only highest grade heavy duty seamless steel masting is recommended for three or more "Beamed Power" installations. Dural 61S-T6 .125" wall is ample for a maximum of two bands with smaller arrays such as a 3 ten or fifteen over 3 on 20 meters.

For your convenience, Telrex carries in stock 2" O.D. x .135" wall Diamond 'E' seamless steel for multi-band "stay-up" installations. This tubing is available machined or unmachined on special order. We also carry Dural 61S-T6 .125" wall in 12 ft. lengths.

HEIGHT ABOVE GROUND

When installing horizontal beams with two or more elements we suggest you forget so-called optimum height above ground. Having quantitative data at varying heights above ground, we conclude: install your beam as high as practical. You are then assured of highest signal-to-noise ratio, less qsb and less possibility of pattern distortion, although a Telrex 2 or 3 element beam at 28 to 32 feet will produce world-wide coverage easily. Always avoid installing a beam near a varying ground condition such as would be presented by the wiring or plumbing skeleton of a home or factory. If mounted close to such metallic objects, the loading, pattern and match can be seriously affected.

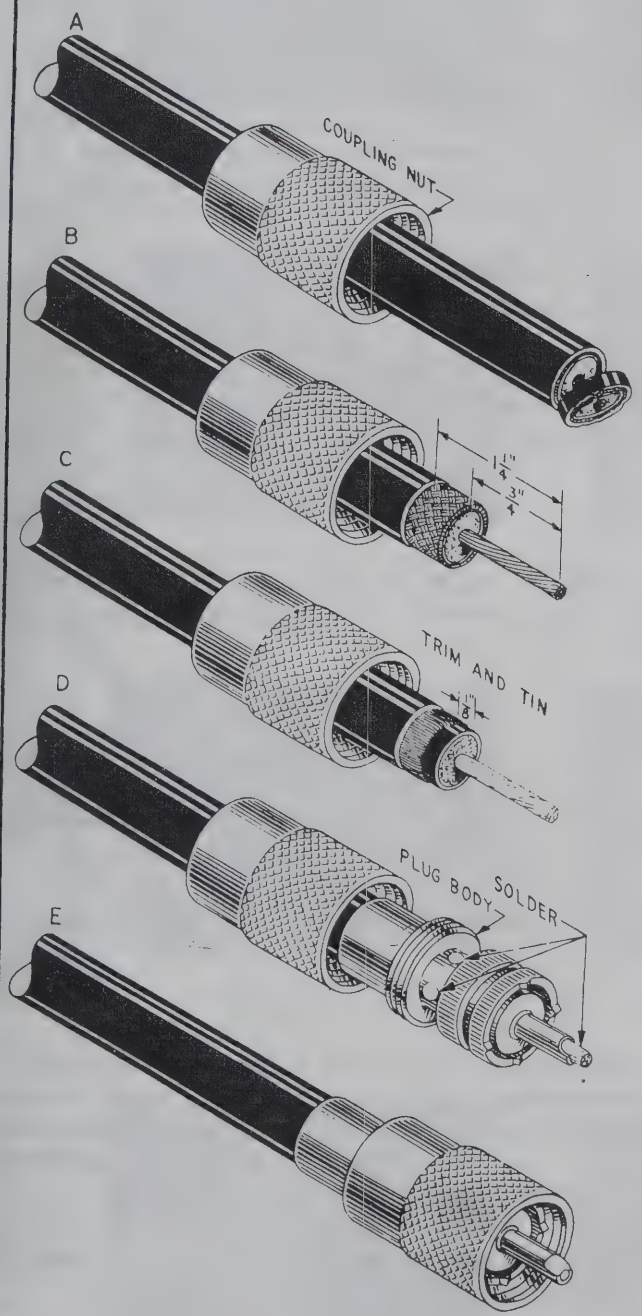
To avoid costly installations, remember a 4 or 5 element beam is more effective at 40 feet than a 2 element beam at 100 feet, and obviously the installation will cost less and last longer.

NOTE: Our "Beamed Power - Perfect Match" Rotaries are all pre-tuned and will perform as specified, assuming no close proximity to metal. If a 2, 3, or 4 array system on one mast is contemplated, revised measurements are necessary in many cases. We suggest you order as a group. If you intend to install a 3 element 10 meter beam which you may already own, over a 3 element 20 Telrex beam, we recommend an 8 ft. separation. On the other hand with our combinations we use 72" [redacted] spacing which becomes practical because we tune both beams when set at this distance, and eliminate interaction.

TRANSMISSION LINE

All Telrex "Beamed Power" Arrays in this series are designed for 52 ohm coaxial cable such as RG-8/U or RG-14/U, although, 72 ohm transmission line can be substituted without adjustment; the increase in S/W/R when using 72 ohm line instead of 52 ohm line is generally less than 2 percent. If transmission lines other than coaxial are preferred, remove the coaxial balun at the antenna and use any balanced line of approximately 200 ohm impedance such as Federal K200 or equal.

V. Recommended Method of Attaching Plug



(A) Square off the end of the RG-8/U cable. Slide the coupling nut over the cable.

(B) Cut the outer jacket of the cable 1¼" from the end. Be careful not to nick the copper braid underneath. Cut the copper braid and inner insulation ¾" from the end.

(C) Fan out, trim, and tin the copper braid.

(D) Screw the plug body over the outer jacket until 1/16" of the inner conductor is exposed. Be careful not to push back the copper braid. Solder the plug body to the copper braid through the 4 holes provided. Solder the inner conductor to the contact sleeve. Remove any excess solder and cut off the inner conductor where it projects past the contact sleeve.

(E) Slide the coupling nut forward until it is free from the internal thread.

Coaxial cable is strongly advised because of its durability and ease of low pass filtering. If your transmitter is of pi-network design such as the Collins, Barker-Williamson, Hallicrafter, Johnson-Viking, Sonar, etc., install a low-pass filter right at the transmitter, attach a PL-259 male plug to your transmission line, screw it into the center coaxial SO-239 at our junction terminal block and you are ready to go !

FAILURE TO LOAD (Link Coupled Transmitters)

Even with perfectly matched beams some coaxial line reactance can occur and some link coupled transmitters may fail to load properly with our beams. To reduce this possibility it is suggested your coaxial transmission line be as near to 1/2 wave multiples as possible (22' 8") and employ either a manufactured "Balun" such as a Barker-Williamson, or fabricate a coaxial 1/2 wave balun (see Sketch No. 1). A balun is highly recommended with link-coupled transmitters because it allows looser coupling and balances the load to the tube or tubes, while eliminating circulating currents on the coaxial line within the station, which will help reduce TVI and BCI. Antenna tuners are not required or desirable with our beams, although they can be used to eliminate line reactance. Another alternative for line reactance is to prune your transmission line (add or subtract a few feet) until proper loading occurs, or a series receiving type variable condenser (50 or 75 mmfd) from shield of the coaxial line (at the link) to transmitter chassis, can be used to eliminate line reactance.

NOTE !

The combination of 1/2 wave balun and multiples of 22' 8" transmission line is strongly advised. It is definitely worth the bother and has eliminated loading troubles at many installations.

ASSEMBLY

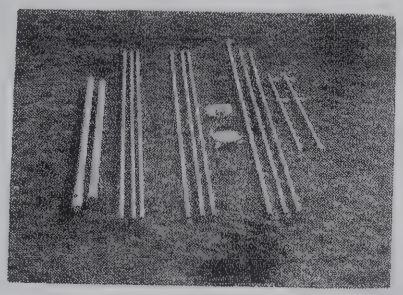
Assembly photos are included to show a step by step assembly of our pre-tuned beams. No telescoping or fitting part should be forced. It is advisable to hesitate and determine the cause of binding. All our fits are honed and pre-fitted but a slight burr can develop into a frozen joint, so we recommend using fine steel wool to clean mating surfaces if binding occurs. Properly dust off the parts, apply the anti-corrosive material we supply, set the elements to the calibrated screw stops, and tape.

CAUTION !

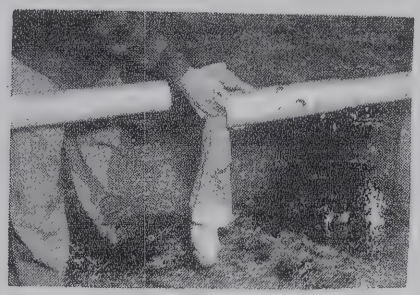
When assembling the center element sections to boom use the curved washer supplied, bring up the nut hand-tight, then tighten approximately 1/4 turn with wrench or pliers; install the "Pal" nuts supplied and tighten. Failure to observe this precaution can weaken the center element section and will certainly make disassembly more difficult, should you ever wish to take the beam apart.

If any additional technical data is required, please write Department H, Telrex, Inc., Asbury Park, New Jersey. Phone - PRospect 5-7252.

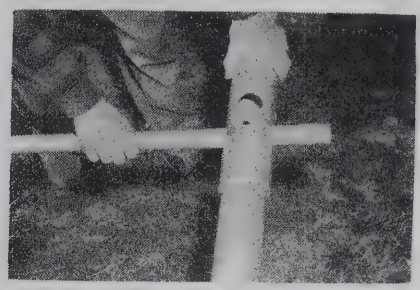
PHOTOGRAPHIC ASSEMBLY SEQUENCE for TELREX "BEAMED POWER" ARRAYS



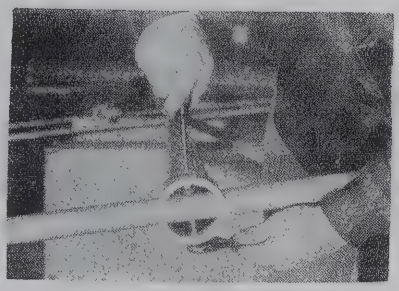
Showing "Beamed Power" Rotaries as shipped. Instructions and anti-sieze compound plus case hardened roll pin and bolt are also included. One section of boom is shipped with center 3-1/2" coupling and mounting attached.



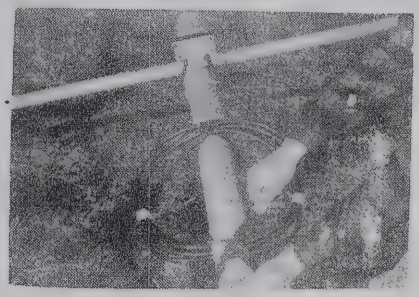
Showing the mating surfaces being cleaned with cloth and assembly of boom halves.



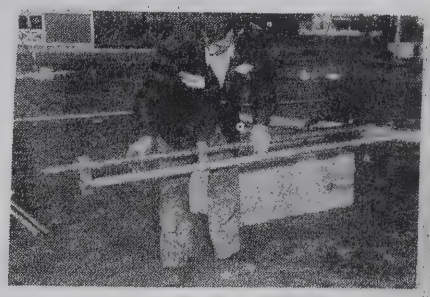
Center sections of elements being inserted into boom cross member. Note: Holes and elements are all marked for easy identification and mating with each other.



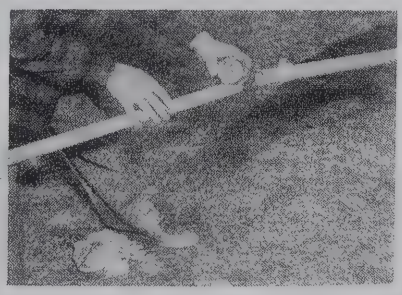
Captivation of center section of elements showing concave washer used to prevent element distortion. After tightening bolt use extra hex nut (supplied) to lock the other nut in place.

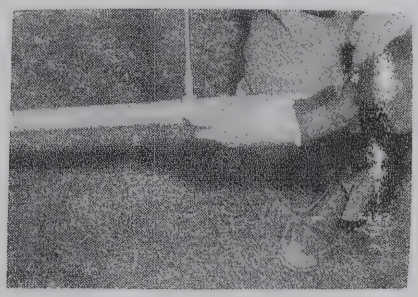


Close up of "Balun" T-Match Connection Block mounted to boom with co-axial Balun vinyl taped then varnished.

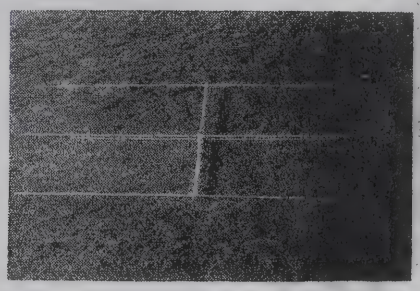


T-Match Transformer being attached to the driven element, after cleaning and applying the anti-sieze compound at all connection points.

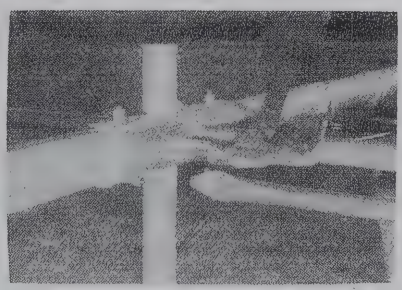




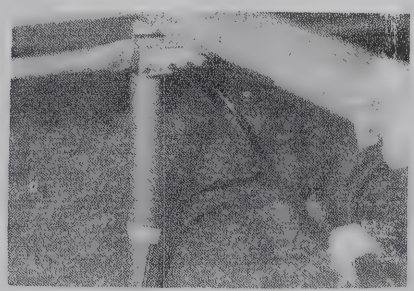
Note: After the boom and all center fixed section of elements are in place, carefully clean, apply anti-sieze compound, insert mating telescoping end sections and tighten securely. Vinyl tape and varnish the tape to prevent unraveling.



"Beamed Power" Array assembled and ready for erection.



Showing Rotary Beam mounted on 2" mast (drilled for roll pin entry) and roll pin being very carefully tamped into position. Use bolt and nut to captivate the roll pin.



T-Match Connection Block showing co-axial transmission line in position and vinyl taped to mast.

"Beamed Power" Array erected and ready for matchless, trouble free performance.

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NOW! Rotaries fully integrated – mechanically and electrically – Precision-tuned and Matched for "top-man-on-the-frequency" results. No formulas, no promises, and no longer need you endlessly tune and adjust without ever the assurance that you have completely eliminated all variables etc. The units are fully calibrated for quick assembly at your site, guaranteed to provide optimum results with no 'doodling'!

Nothing has been left to chance, - the spacing is optimum - the performance outstanding! Now, for the first time, you can buy an array with definite specifications, assembly and install at your site and work anything you can hear just as long as the other operator tunes to your frequency.

These Rotaries avoid the necessity of buying F/S meters, S/W/R bridges, pattern plotting equipment, formulas, and endless tuning and adjusting for weeks on end. These Rotaries are of minimum bulk - minimum wind resistant design. Material is of the best, including Westinghouse micarta; 61S-T6 Dural, silver plated copper connections, coaxial 1/2 wave balun, and complete with T-match and shorting straps for optimum coupling, precision tuned and calibrated for unity S/W/R, "Balanced-pattern" and peak gain with "Balun" feed to reduce T-V-I tremendously.

All Telrex Beams incorporate single hole 2" O. D. mount for mounting onto a 2" O. D. hi-strength seamless steel mast, (available at additional cost). Captivating "Roll Pin", bolt and nut are supplied. Our Rotaries are of commercial communication design and make feasible multi-band arrays on one rotating mast, truly fitting the laudatory expression designed to separate the "men-from-the-boys." Ask the man who owns one! for confirmation of our claims.

Should you desire a 10-, 15-, and 20-Meter installation on one rotating mast, the mounting procedure is to fully assemble all beams on the ground and with the precision drilled hi-strength mast installed temporarily so that it juts out about 2 ft. beyond the tower top, gin-pole the fully assembled 15-Meter Beam to the top, carefully avoiding the 20-Meter elements, and ease its mounting hole over the 2" support mast. The 10-Meter Beam is then threaded through the 20- and 15-Meter elements, and eased over the support mast. Keep all directors facing one way – captivate the 10-Meter beam to the top hole – attach coaxial line, then raise the masting until the next hole (approximately 6-ft.) appears. Captivate the 15-Meter Beam, attach the coaxial cable, - raise the masting until the next hole (approximately 6-ft.) appears - captivate the 20 Meter Beam. (All roll-pins, bolts, and nuts are supplied.) Our spacing definitely eliminates hi-angle radiation and beam interaction. If closer spacing is desired, the 15-Meter Beam is installed at right angles to the other beam or beams, with 4-1/2 ft. spacing.

Next, raise the entire assembly so that the 20-Meter Beam is approximately 2-ft. above the tower top, so as not to affect its resonate frequency, pattern or match.

The W2BDS Telrex "Beamed Power" Rotary installation pictured is designed for 85 mph. wind loading, and has withstood 95 mph. gales without trouble of any kind. For installations which may be subjected to exceptionally high wind loading, e.g. on mountain tops, special reinforcement equipment is available at extra cost.

Almost any heavy duty rotator (not a TV rotator) with an output speed of approximately 1-1/2 rpm. and driven by a 1/20 hp. motor (or larger), will give satisfactory results. It is recommended that the rotator shelf be at least 4-ft. below the top plate of the tower and that the top plate be fitted with a ball or oilite radial bearing to permit the mast to rotate freely. Special towers designed for this type of installation are available from Aeromotor Tower Co. of Chicago, Illinois.

NOTE! - To preserve our match and pattern, mount Beams a minimum of 28-ft. above ground, - the higher the better. Avoid telephone and electric lines — mount at least 8-ft. above roof peaks. These beams can be installed on telephone poles or towers. All beams come complete with coaxial, 1/2-wave baluns and are fed with 52 ohm coax. Special hi-strength precision machined, dual sprayed, "Diamond E" masting is available from Telrex.

The photo shows a very efficient "home-built" rotator used a W2BDS. It employs a Bodine "NCI-54RL," 1/8 Hp. capacitor start run motor with built-in gear reducter (43RPM output) coupled through a Boston FCR-15, (5/8" bore) flexible gear coupling to a Boston #G1076K-R.H. worm, supported on each end by suitable support blocks. The worm engages a Boston #107-R.H. worm gear which is pinned to the 2" I.D. output drive shaft with a 1/2" bolt. The drive shaft is mounted on a suitable thrust bearing which supports the entire array.

The 2" I.D. output shaft used here, accepts the 2" O.D. support mast and facilitates rapid take-down for test purposes. In most cases, however, the 2" O.D. mast con be secured directly to the worm gear and decoupled at the worm when mounting or taking down beams.

The 2" dia. mast can of course be coupled to any other rotator. For example, if a Johnson or other "table" type rotator is employed, a 2", high neck pipe flange is secured to the bottom end of the 2" support mast, this in turn being screwed to the exact center of the rotated shaft or table of various rotators available.

If it is intended to only use one orray the rotator can be mounted on top of the tower with the beam boom attached to the rotator with a suitable cradle. Locating the rotator within the tower or on the side of a telephone pole at least 4' below allows multi-beam installations with the rotator doing very little support work.

A sheet is included with each beam showing prospective installers some of the pertinent installation hints.

T E L R E X

'BEAMED POWER" -- "PERFECT MATCH" ROTARIES, PRECISION TUNED AND CALIBRATED. FULLY MACHINED AND FABRICATED. NO TUNING, ADJUSTMENTS, OR REDESIGNING REQUIRED!

3-1/2" x 1/4" wall boom brace and mounting fixture on all "Beamed Power" 10, 20 & 40-Meter Rotaries

Close up photo of Telrex 15 and 20 Meter "Beamed Power" "Perfect Match" Rotaries showing pertinent features. Designed and manufactured with the best materials money can buy! -- then priced!

T E L R E X

DESIGNED, TUNED AND CALIBRATED TO PROVIDE "OUTSTANDING PERFORMANCE" AT YOUR SITE!

All elements provided with calibrated screw stops.

1-3/8" O.D. dural telescoping ends

Heavy duty element clamps

Every Telrex "Beamed Power" Rotary is provided with a coaxial "Perfect Match" -- "Balanced Pattern" half-wave "Balun fully assembled.

1-1/2" dural center elements

Special Telrex developed "T" transformer with dual strap settings. Calibrated and set for resistive, unity, S/W/R at peak gain and pattern.

3-1/2" x 1/4" element reinforcing sleeves

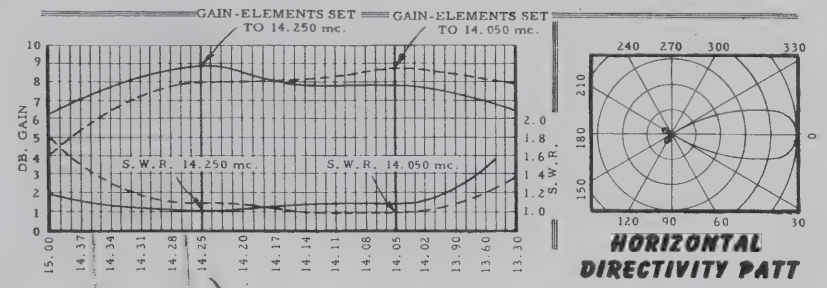
(set for 14230)

3" O.D. dural boom

Coaxial junction block fully assembled

All "Beamed Power" Rotaries are designed to mount onto a 2" O.D. heavy wall dural or steel tubing (supplied at extra cost!), captivated by "Roll Pin" bolt and nut supplied with each beam.

All Telrex Beams are dynamically balanced



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3 ELEMENT "BEAMED POWER ROTARIES" TYPICAL GAIN & S.W.R. CHARACTERISTICS

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6-3-8 RIT ON/OFF CONTROL CIRCUIT

Q9 and Q17 make up the RIT ON/OFF control circuit. The voltage of the RIT IC terminal of J6 is fed to the emitter of Q17 through R51. The terminal is 0 Volts when the RIT is ON and 5 Volts when it is OFF. Q17 prevents the reverse flow from the base of Q9. The collector of Q9 is fed voltage from the RIT control and shunt to ground when the RIT is OFF.

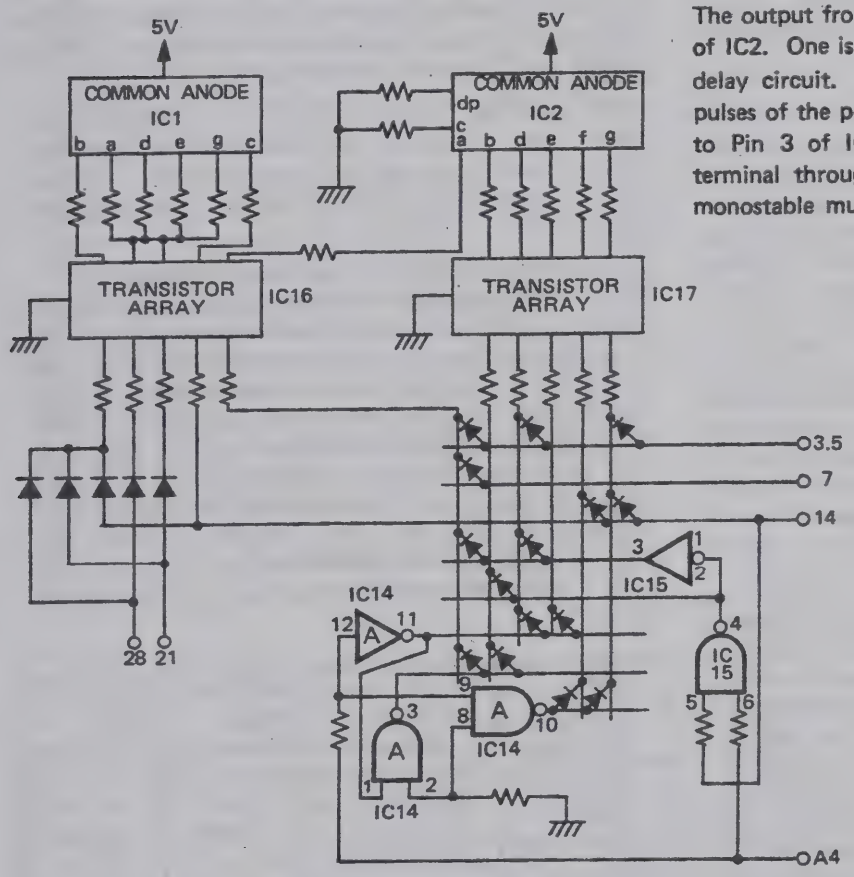
6-4 DRIVER UNIT

6-4-1 FREQUENCY DISPLAY

IC1-IC6 are the 7 segment LED indicators for the frequency display. IC3-IC6 are driven by IC22-IC25. The input for the drivers is taken from the BCD output of IC1, A0-D3 in the PLL.

IC1 and IC2 are driven by IC16 and IC17. The input of each band is decoded by IC14 and IC15 and D21-D35 to indicate the MHz and 10MHz digits.

10MHz · 1MHz DIGITS DISPLAY
SCHEMATIC DIAGRAM

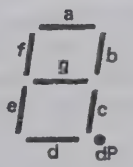


6-4-2 PHOTO-CHOPPER CIRCUIT

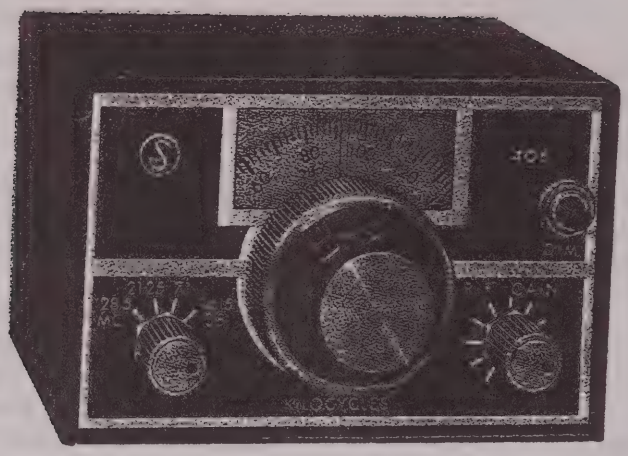
D38 and D39 are infrared LED diodes and Q1 and Q2 are the photo transistors. D38 sends a continuous light source to Q1 and D39 sends it to Q2. Between the diodes and the transistors is a windowed chopper disk which is connected directly to the shaft of the tuning knob. The diodes and photo transistors are set up so that the phase difference of 90 degrees results when the disc revolves. The signal from Q1 and Q2 is fed to IC1 on the driver unit. Pin 3 of IC1 is connected to the data input pin (Pin 5) of flip-flop IC3. The output from Pin 4 is divided, and fed to Pins 5 and 6 of IC2. One is fed directly and the other is fed through a delay circuit. IC2 is an exclusive OR gate IC, and both pulses of the positive edge and the negative edge are added to Pin 3 of IC3 and Q output is added to IC3's reset terminal through the delay circuit so IC3 operates as a monostable multivibrator. Q is fed to Pin 8 of IC2, the

IC14 is switched ON in 28MHz band.

BAND MHz	BAND DATA						10MHz DIGIT						1MHz DIGIT					
	3.5	7	14	21	28	A4	a	b	c	d	e	g	a	b	d	e	f	g
1.8	L	L	L	L	L	L	–	–	–	–	–	–	–	ON	–	–	–	–
3.5	H	L	L	L	L	L	–	–	–	–	–	–	ON	ON	ON	–	–	ON
7	L	H	L	L	L	L	–	–	–	–	–	–	ON	ON	–	–	–	–
14	L	L	H	L	L	L	–	ON	ON	–	–	–	–	ON	–	–	ON	ON
15	L	L	H	L	L	H	–	ON	ON	–	–	–	ON	–	ON	–	ON	ON
21	L	L	L	H	L	L	ON	ON	–	ON	ON	ON	–	ON	–	–	–	–
28	L	L	L	L	H	L	ON	ON	–	ON	ON	ON	ON	ON	ON	ON	ON	ON
29	L	L	L	L	H	H	ON	ON	–	ON	ON	ON	ON	ON	–	–	ON	ON



The segments "dp" and "c" of 1MHz digit are turned on in any band.



SWAN MODEL 406B FREQUENCY CONTROL UNIT

Model 406B Frequency Control Unit is designed for full phone band coverage of 80, 40, 20 and 15 meters, and one 500 kc segment of the 10-meter band. The unit is specifically intended for mobile operation, and provisions for mobile mounting have been incorporated.

CIRCUIT THEORY

Q1, the 2N706 Oscillator operates in the common base configuration, as a Colpitts oscillator. See Figure 6. Capacitors C1801, C2001, and C2003 effectively tap the oscillator across only about 10 percent of the tank circuit. This results in exceptional stability. Q2, the Emitter Follower, is used for matching the impedance of the coaxial cable to the transceiver, as well as for isolation. The bandswitch selects the appropriate coil and trimmer for each range. Dial tracking is adjusted with the core and trimmer. With proper adjustment of coils and trimmers, the Model 406B may be used to cover any 200-kc segment in the 80- through 15-meter amateur bands, and any 500 kc segment of the 10 meter band.

INSTALLATION

A universal mounting bracket and mounting screws are supplied with the Model 406B. This bracket may be either top mounted, or bottom mounted, depending on where the 406B is to be mounted in the car. Many of the newer cars have a padded overhang. In other cases, attaching the mounting bracket to the bottom of the 406B will allow installation on a top surface. A row of small holes are provided along the sides of the 406B cabinet for top mounting of the bracket. You will find that the bracket will also allow tilting of the 406B. For bottom mounting, it will be necessary to drill additional holes along the bottom of the cabinet. Remove the cabinet first, and you will find chassis holes already provided for this purpose. Simply add these same holes to the cabinet.

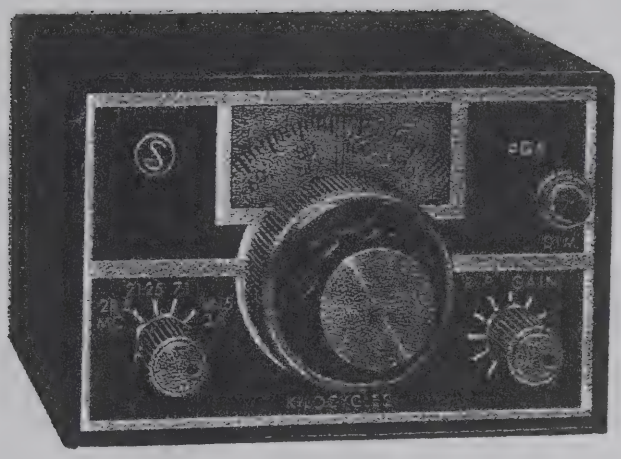
ALIGNMENT

Alignment of the Model 406B requires only the use of a general coverage receiver tuning the frequency ranges between 8 mc and 24 mc. Calibration of the receiver is not critical since the crystal calibrator in the transceiver is used for final adjustment but the receiver must be accurate within 50 kc to permit selection of the proper 100 kc harmonic.

FOR MINOR FREQUENCY ADJUSTMENTS, which may be required after the initial aging period, simply remove the cabinet cover and very carefully adjust the trimmer capacitor marked for the specific range.

FOR MAJOR FREQUENCY ADJUSTMENTS Tune Frequency Control Unit to low end of frequency range, and locate heterodyne with general coverage receiver at frequency indicated in the following table. Adjust vernier coil to bring heterodyne within a few kc of the receiver frequency, then switch on calibrator and adjust vernier coil for zero beat with calibrator at 100 kc increment of dial. Move tuning to high end of tuning range and adjust trimmer capacitor for zero beat. Repeat high and low end adjustments until calibration is correct at both ends. Coil and capacitor locations are marked in the unit.

406B FREQ RANGE	OSC. FREQ. (kc)	ADJUST COIL (Low end)	ADJUST CAP. (Hi end)
3.8-4.0 14.15-14.35	Low-High 8973-9173	L1801	C1804
7.1-7.3	12,273-12,473	L1802	C1810
21.25-21.45	16,077-16,277	L1803	C1813
28.5-29.0	23,327-23.827	L1804	C1807



SWAN MODEL 406B FREQUENCY CONTROL UNIT

Model 406B Frequency Control Unit is designed for full phone band coverage of 80, 40, 20 and 15 meters, and one 500 kc segment of the 10-meter band. The unit is specifically intended for mobile operation, and provisions for mobile mounting have been incorporated.

CIRCUIT THEORY

Q1, the 2N706 Oscillator operates in the common base configuration, as a Colpitts oscillator. See Figure 6. Capacitors C1801, C2001, and C2003 effectively tap the oscillator across only about 10 percent of the tank circuit. This results in exceptional stability. Q2, the Emitter Follower, is used for matching the impedance of the coaxial cable to the transceiver, as well as for isolation. The bandswitch selects the appropriate coil and trimmer for each range. Dial tracking is adjusted with the core and trimmer. With proper adjustment of coils and trimmers, the Model 406B may be used to cover any 200-kc segment in the 80- through 15-meter amateur bands, and any 500 kc segment of the 10 meter band.

INSTALLATION

A universal mounting bracket and mounting screws are supplied with the Model 406B. This bracket may be either top mounted, or bottom mounted, depending on where the 406B is to be mounted in the car. Many of the newer cars have a padded overhang. In other cases, attaching the mounting bracket to the bottom of the 406B will allow installation on a top surface. A row of small holes are provided along the sides of the 406B cabinet for top mounting of the bracket. You will find that the bracket will also allow tilting of the 406B. For bottom mounting, it will be necessary to drill additional holes along the bottom of the cabinet. Remove the cabinet first, and you will find chassis holes already provided for this purpose. Simply add these same holes to the cabinet.

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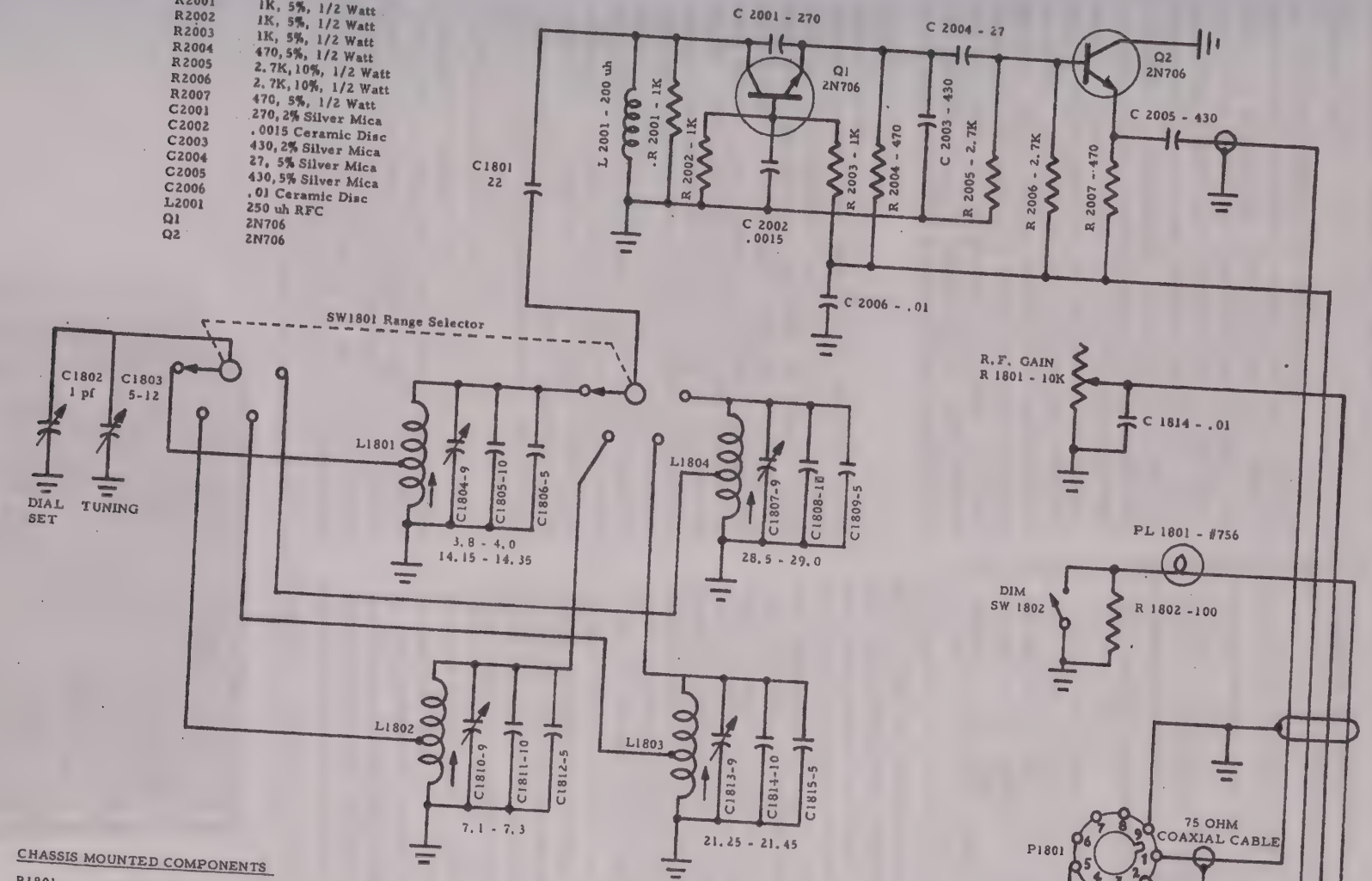


CIRCUIT BOARD MOUNTED COMPONENTS

R2001	1K, 5%, 1/2 Watt
R2002	1K, 5%, 1/2 Watt
R2003	1K, 5%, 1/2 Watt
R2004	470, 5%, 1/2 Watt
R2005	2.7K, 10%, 1/2 Watt
R2006	2.7K, 10%, 1/2 Watt
R2007	470, 5%, 1/2 Watt
C2001	270, 2% Silver Mica
C2002	.0015 Ceramic Disc
C2003	430, 2% Silver Mica
C2004	27, 5% Silver Mica
C2005	430, 5% Silver Mica
C2006	.01 Ceramic Disc
L2001	250 uh RFC
Q1	2N706
Q2	2N706

CHASSIS MOUNTED COMPONENTS

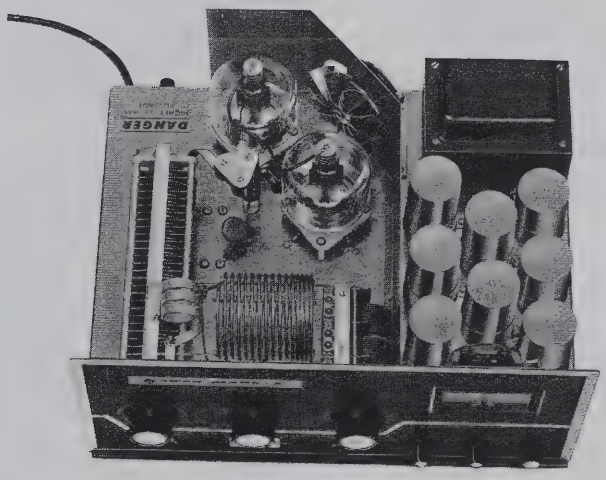
R1801	10K, 5%, Reverse Log Taper	C1805	10, 5%, N330	C1811	10, 5%, N220	SW1802	Dim Switch
R1802	100 Ohm, 10%, 1 Watt	C1806	5, 5%, N470	C1812	5, 5%, N330	L1801	VFO Coil
C1801	22, 5%, N330	C1807	9 pf Trimmer	C1813	9 pf Trimmer	L1802	VFO Coil
C1802	1 pf Dial Set	C1808	10, 5% NPO	C1814	10, 5%, N220	L1803	VFO Coil
C1803	5-12 Tunning Capacitor	C1809	5, 5%, N150	C1815	5, 5%, N150	L1804	VFO Coil
C1804	9 pf Trimmer	C1810	9 pf Trimmer	SW1801	Range Switch		

FIG.18 SCHEMATIC DIAGRAM, MODEL 406B FREQUENCY CONTROL UNIT

SWAN MARK I

GROUNDED GRID LINEAR AMPLIFIER

2000 Watt PEP Input, 80 through 10 meters . . .



Swan again provides the ultimate in equipment design at a reasonable cost. The new MARK I Linear Amplifier uses two EIMAC 3-400Z or Amperex 8163 zero bias triodes in grounded grid circuit for conservative maximum legal input rating. Power switch reduces input to 1 KW dc input rating for CW and tune-up. Untuned input circuit provides maximum operating ease, fastest QSY capability. Built-in 2500 volt, solid state 117/220 volt AC supply is designed for extended trouble-free operation. New final tube cooling concept guarantees long tube life and reduces initial equipment cost. Dual changeover relays provide automatic barefoot or linear operation as desired. Wide range pi-output network allows use with variety of antenna systems without need for external matching networks. Designed by hams for hams, MARK I provides all necessary features for complete HF band operation. Metering of Grid current, Plate current, Plate voltage, and relative output, allows monitoring of all essential parameters and maximum ease in tune up.

Again Swan leads the field with maximum quality and dollar value

SPECIFICATIONS

- ★ Computer grade electrolytics provide 40 mfd. filter capacity for exceptional dynamic regulation.
- ★ Ceramic insulation on all tuning capacitors, RF switches and relays.
- ★ Built-in solid state 2500 volt power supply for 117 or 230 volts, 50-60 cycle AC.
- ★ Covers amateur bands 10 through 80 meters.
- ★ Two Eimac 3-400Z zero bias triodes in grounded grid circuit.
- ★ 2000 watts P.E.P. input, 1000 watts CW and tune input.
- ★ Drive requirements 100 watts.
- ★ Wide range pi output.
- ★ Includes changeover relay.
- ★ Approx. weight 55 lbs.
- ★ Dimensions: 19" x 8½" x 15½".

CAUTION: NEVER REMOVE THE CABINET OR BOTTOM PLATE WHEN POWER LINE VOLTAGE IS CONNECTED. HIGHLY LETHAL VOLTAGE IS USED IN THIS AMPLIFIER. ALLOW AT LEAST ONE MINUTE FOR CAPACITORS TO DISCHARGE AFTER TURNING THE AMPLIFIER OFF AND PULLING THE PLUG.

INSTALLATION

(a) Remove the cabinet, and install a pair of Eimac 3-400Z tubes.

(b) Connect a short length of coaxial cable (RG-58 or RG8) from the transceiver or exciter to the input jack on the Mark I. This cable should be as short as practical, and preferably not more than 5 feet long. NOTE: Swamping the exciter or driver power with an attenuator is not normally required with drivers up to 400 watt PEP input rating. After proper tuning procedures have been followed, the Mic. Gain control will be used to set the level of drive. If the driver is called on for less than its maximum power, distortion products will be less, and overall performance improved.

(c) Connect a 2 conductor line from auxiliary switching contacts on the driver to the Relay Control jack on the Mark I. When using the Swan-240, 350, or 400 as a driver, the 2 conductors connect to "C" and "T" terminals on back of the transceiver.

(d) Connect the antenna coax. or dummy load to the output jack. If a low-pass filter is to be installed to reduce TVI, connect it between the output jack and the antenna.

(e) Connect a ground lead to the Mark I chassis. A water pipe or ground rod will be suitable.

(f) Power Line Connections—The Mark I is shipped from the factory for 230 volts operation. The white and black power cord wires go to 230 volts, with the green wire going to neutral-center, (ground). A plug is not supplied because of the many different types being used. To operate from a 117 volt source, remove the bottom cover and find the 4 screw terminal strip located near the power transformer. Remove the jumper wire which connects the two center screws, B and C. Connect a jumper wire from A to B and another jumper wire from C to D. Refer to the schematic for clarification. Then connect the white and black power cord wires to 117 volts, and the green wire to ground. Finally, remove the 20 amp. line fuses, and replace with 30 amp. fuses. NOTE: When the Mark I is used with 117 volts, current drain will exceed most outlet ratings, particularly in OPERATE position. It may be necessary to use only the TUNE-CW position, which will reduce power input, but will keep circuit breakers from kicking out. If it is necessary to operate with 117 volts try to run the Mark I on a separate circuit, and if possible, on the opposite side of the primary house circuit from the side used for the rest of the station. Always use 230 volts for the Mark I, when possible.

TUNING INSTRUCTIONS

1—Always tune the exciter or transceiver first, with the Mark I turned OFF. Exciter output will be by-passed around the linear amplifier by the internal relay, and will go to whatever antenna or load is connected. The "Output" position of the Mark I meter circuit will indicate exciter output, and may be used conveniently as a tuning meter. Simply adjust the exciter controls for maximum output, using whatever tuning procedure is prescribed for the particular exciter. Then switch the exciter to standby or receive.

2—Turn the Mark I to the ON position and allow several seconds for filament warm up. Leave the Meter switch in "Output" position. Set the Function Switch to TUNE-CW position. The green "Standby" light will be on, and the 3-400Z tube filaments will be lit brightly. The tubes are biased to cut-off in standby position, so IP and IG will read zero. EP will read approximately 1600 volts, depending on line voltage.

3—Switch the exciter to TRANSMIT position, but with Mic. Gain turned down, and the carrier balanced out, so there is no R. F. output. (With the Swan 350 transceiver this is done by pressing the push-to-talk button). The Mark I will now be switched to TRANSMIT mode by the closing of the auxiliary contacts, and the red indicator light will come on. The 3-400Z tubes will now be drawing idling current, so IP will read approximately .1 amperes and EP approximately 1500 volts. IG should still read zero.

4—Switch the Exciter to its "TUNE" position, and quickly adjust P.A. TUNE on the Mark I for maximum output. Then go back to the Exciter and adjust its P.A. TUNE for maximum output. (It may have changed slightly when switched into the Mark I). Next, adjust P.A. LOAD on the Mark I for maximum output, and then alternate between adjusting P.A. TUNE and P.A. LOAD until maximum output is reached. Set the Output Level Control as required to keep the meter from going off scale. The output reading is a relative indication, only. CAUTION: DO NOT KEEP THE EXCITER OR TRANSCEIVER IN TUNE POSITION FOR LONGER THAN 30 SECONDS AT A TIME. This caution note concerns the exciter more than the Mark I, but since the power

amplifiers are operating at full input during tune, the time should always be kept short. If longer time is required, switch to standby for a minute, and then back to TUNE for 30 seconds. With experience in tuning procedures, it will be found that 30 seconds is more than enough time.

5—After tuning all controls for maximum output indication as described, other meter readings may be observed. IG (grid current) should indicate .2 to .5 amperes in TUNE position, depending on the amount of driving power. Swan transceivers will generally supply more driving power than others presently on the market. However, most transceivers will provide enough to drive the Mark I to full legal power. IP (plate current) should indicate between .6 and .8 amperes (see paragraph 9). The exact values of grid and plate current are not critical providing they do not exceed .6 grid amperes, and .8 plate amperes, and this only during short duration tuning periods.

6—To operate with SSB voice modulation, switch the Mark I to "OPERATE" position, and apply excitation with the driver, using the MIC. GAIN control directly as a power control. **IMPORTANT:** Once tuning procedures have been completed, set the meter switch to IP, and using average plate current as an indication of proper power level, set the Mic. Gain control for an average reading of .35 amperes. Only occasional voice peaks should kick to .5 amperes. Peak envelope power input will be at the legal limit of 2000 watts under these tuning conditions. **CAUTION:** Exercise care in setting the Mic. Gain control. Too high a setting will produce higher meter readings, but flat-topping and spurious emissions will result, as well as the possibility of exceeding legal power limits.

WARRANTY POLICY

SWAN ELECTRONICS CORPORATION WARRANTS THIS EQUIPMENT AGAINST DEFECTS IN MATERIAL OR WORKMANSHIP, EXCEPT FOR TUBES, TRANSISTORS, AND DIODES, UNDER NORMAL SERVICE FOR A PERIOD OF ONE YEAR FROM DATE OF ORIGINAL PURCHASE. THIS WARRANTY IS VALID ONLY IF THE ENCLOSED CARD IS PROPERLY FILLED IN AND MAILED TO THE FACTORY WITHIN TEN DAYS OF DATE OF PURCHASE. DO NOT SHIP TO THE FACTORY WITHOUT PRIOR AUTHORIZATION. THIS WARRANTY IS LIMITED TO REPAIRING OR REPLACING ONLY THE DEFECTIVE PARTS, AND IS NOT VALID IF THE EQUIPMENT HAS BEEN TAMPERED WITH, MISUSED OR DAMAGED.

7—When the Mark I Function Switch is in OPERATE position for SSB voice transmission, plate voltage is increased from the CW-TUNE value. In Standby or Receive condition, the 3-400Z tubes are biased to cut-off, so IP will be zero, and EP will indicate 2900 volts. In TRANSMIT position, without modulation, IP will show an idling current of .18 amperes, and EP will drop to 2650 volts. With voice modulation averaging .35 amperes, EP will drop to about 2500 volts. Occasional voice syllables may drop the plate voltage further, but with proper setting of the Mic. Gain control, dynamic regulation of the internal power supply is more than adequate. Use of computer grade electrolytics assures long capacitor life, and a net capacity of 40 mfd. across the plate supply. (Voltage readings are subject to line voltage variations).

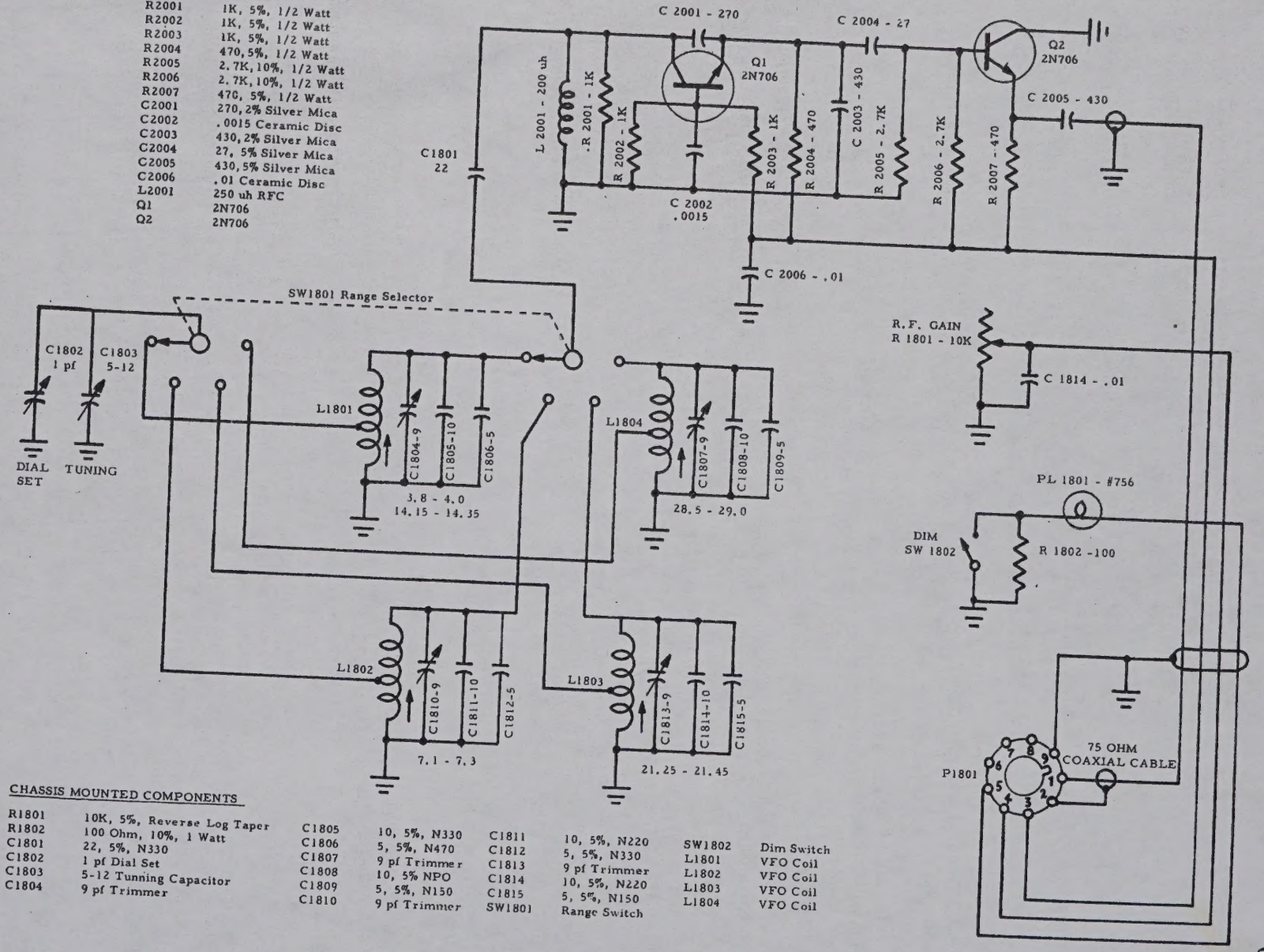
8—To operate without the Mark I Linear Amplifier, simply switch it to "OFF". The antenna circuit is then by-passed around the amplifier by the internal relay and the transceiver-driver will operate "Barefoot".

9—To operate on CW-always keep the Function Switch in the TUNE-CW position in order to limit input power to 1000 watts. **CAUTION:** Because the Mark I uses a grounded grid amplifier circuit, input power measurements must include the driver stage input. Thus, if the driver is running 300 watts input, the linear amplifier input must be limited to 700 watts when in CW mode. Thus, you must first measure driver input, in order to determine how much input you may run to the Mark I. Use the EP meter position to measure plate voltage, and then calculate how much IP (plate current) you can run and stay within the legal limit. Then use the P.A. Load control to hold IP down to this level.

NOTE: It is quite possible to run well in excess of the legal power limit on CW as well as SSB with the Mark I. The design of an amplifier with linear characteristics up to the legal limit results in this capability. The burden of operating within legal limits falls on the operator and Swan Electronics Corporation is not responsible for improper or illegal operation. Every well informed operator should be familiar with measurement procedures, and with mathematical calculations of power level. Whenever possible, an oscilloscope should be used to monitor peak power levels, since ordinary meters are unable to do so.

CIRCUIT BOARD MOUNTED COMPONENTS

R2001	1K, 5%, 1/2 Watt
R2002	1K, 5%, 1/2 Watt
R2003	1K, 5%, 1/2 Watt
R2004	470, 5%, 1/2 Watt
R2005	2.7K, 10%, 1/2 Watt
R2006	2.7K, 10%, 1/2 Watt
R2007	47G, 5%, 1/2 Watt
C2001	270, 2% Silver Mica
C2002	.0015 Ceramic Disc
C2003	430, 2% Silver Mica
C2004	27, 5% Silver Mica
C2005	430, 5% Silver Mica
C2006	.01 Ceramic Disc
L2001	250 uh RFC
Q1	2N706
Q2	2N706



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R1801	10K, 5%, Reverse Log Taper	C1805	10, 5%, N330	C1811	10, 5%, N220	SW1802	Dim Switch
R1802	100 Ohm, 10%, 1 Watt	C1806	5, 5%, N470	C1812	5, 5%, N330	L1801	VFO Coil
C1801	22, 5%, N330	C1807	9 pf Trimmer	C1813	9 pf Trimmer	L1802	VFO Coil
C1802	1 pf Dial Set	C1808	10, 5% NPO	C1814	10, 5%, N220	L1803	VFO Coil
C1803	5-12 Tunning Capacitor	C1809	5, 5%, N150	C1815	5, 5%, N150	L1804	VFO Coil
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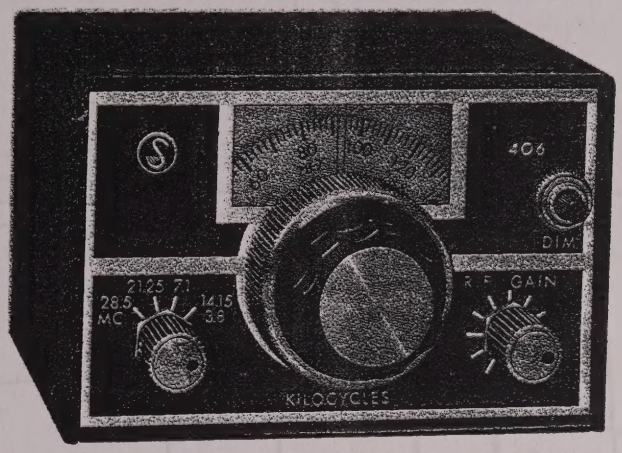
FIG.18 SCHEMATIC DIAGRAM, MODEL 406B FREQUENCY CONTROL UNIT



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